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The Gift of
B. P. Johnson, Esq.,
Corr. Secretary of
the New York State
Agricultural Society
Albany, N.Y.
Rec. July 29,
1848.

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NEW-YORK STATE AGRICULTURAL SOCIETY.

AGRICULTURAL ROOMS,

Albany, July 26 1848.

J. W. Harris Esq

Dear Sir

I send you by Express
to the University Library the vols of
our Transactions for 41. 2. 4 5 6 7. —
Three volumes of the Proceedings
of the Board of Agriculture were
published in 1820. 23. & 26 — —
I do not know where they can be had.
They were distributed to members
of the Board to the members of the
Legislature & to Town Clerks. We have
a set in our Library, and I am
making efforts to find those copies
in exchange donations & other
transactions & and hope to be suc-

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Some copies, and will bear in mind
your library.

I am with great respect
Your obt Servt.
R. P. Johnston
Cor Secretary
N.Y.S. Ag. Society

T. W. Harris Esq
Librarian of the
University of Cambs.

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Presented to the
Library of the University
of
Cambridge,
By
R. P. Johnston
Corg Secretary
N. Y. S. Ag Society
1848.

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TRANSACTIONS

OF THE

NEW-YORK

STATE AGRICULTURAL SOCIETY,

FOR THE

YEAR MDCCCXLI.

VOL. I.

ALBANY:
PRINTED BY T. WEED, PRINTER TO THE STATE.
1842.

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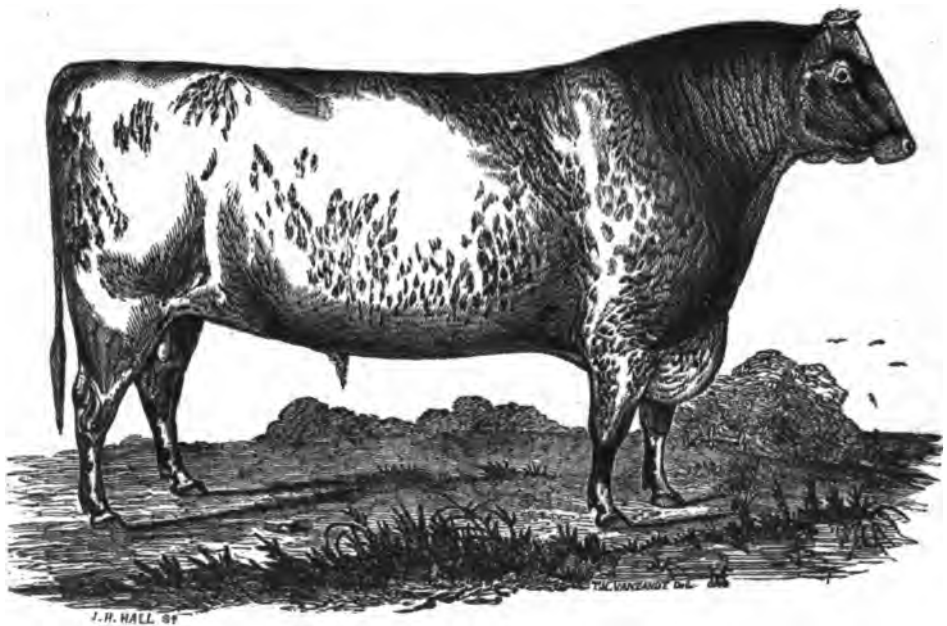

SHORT HORNED BULL—ARCHER.

Bred by F. Rotch, Esq. owned by J. M. Sherwood, Esq. Auburn, New-York.

Which obtained the first Premium at the Fair of the New-York State Agricultural Society, at Syracuse, Sept. 29, 1841.

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STATE OF NEW-YORK.

No. 131.

IN ASSEMBLY,

March 23, 1842.

COMMUNICATION

From the Secretary of State, transmitting the transactions of the New-York State Agricultural Society, and the different county Societies.

[Mr. FULLER, from the standing committee on Agriculture, to whom this communication from the Secretary of State was referred, reported in favor of printing 10 times the usual number of copies for the use of the House, 500 copies for the State Agricultural Society, and 20 copies for each county agricultural society in the State. This motion under a rule of the House, went to the committee on public printing. Subsequently Mr. MEAD, from a majority of the printing committee reported in favor of Mr. FULLER's motion, in which report the House concurred.]

SECRETARY'S OFFICE,
Albany, March 11, 1842.

In obedience to the resolution of the Assembly of the 10th instant, I herewith transmit the "doings of the New-York State Agricultural Society, and the different county agricultural societies," recently deposited in this office, pursuant to the act entitled "An act to promote agriculture," passed, May 5, 1841.

S. YOUNG,
Secretary of State.

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REPORT

Of the committee on agriculture.

Mr. Fuller, from the committee on agriculture, to whom was referred the transactions of the N. Y. State Agricultural Society, and the different county agricultural societies,

REPORTS:

That the committee have examined, with some care, the documents submitted to them, and find them to consist of important and interesting communications, not only from societies and individuals in different parts of this State. but also from distinguished gentlemen connected with the arts of culture in other States, and from foreign countries, containing a vast amount of useful and practical information, which, if diffused among our agricultural population, can not fail of being highly useful to the great agricultural interests of the State. As this is the first report of the Society containing its proceedings, since the passage of the law of the last session of the Legislature, it is deemed the more important that these proceedings should be spread before the public, as evidence of the zeal and energy exhibited by those entrusted with the management of the State and county societies, and of the general beneficial effects of the aid and patronage of the State to the interests of agriculture, as well as the means of still greater and continued improvements in this leading branch of our productive industry. As these papers are of such varied character, all possessing more or less of interest, and embracing so great a variety of subjects calculated to improve and foster almost every branch of rural industry, your committee have not been able to abridge the work for publication, without materially detracting from the merits of the entire collection; and in attempting to make a selection it has been difficult to determine which might be omitted, with the least injury to the usefulness of the work; they have, therefore, come to the conclusion to recommend the adoption of the following resolution:

Resolved, That ten times the usual number of copies be printed for the use of the Legislature; five hundred copies for the use of the State Society; and twenty copies for each of the county societies.

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LETTER

From the Recording Secretary of the New-York State Agricultural Society to the Secretary of State.

To the Hon. SAMUEL YOUNG,

Secretary of State:

SIR—In compliance with the requisitions of the 5th section of the "Act to promote agriculture," passed May 5, 1841, I herewith send you the annual report of the Executive Committee of the New-York State Agricultural Society, embracing an account of their transactions for the year 1841, and abstracts of such reports as have been received from county agricultural societies.

Respectfully yours,

LUTHER TUCKER,

Recording Secretary.

Albany, March 1, 1842.

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ANNUAL REPORT

Of the Executive Committee of the New-York State Agricultural Society for 1841.

I. FORMATION OF THE SOCIETY.

The New-York State Agricultural Society owes its origin to a few zealous and enlightened friends of agriculture, through whose influence and exertions an Agricultural State Convention was held at Albany in February, 1832, at which time the Society was organized, a constitution adopted, and the following gentlemen elected officers for the first year:

LE RAY DE CHAUMONT, *President.*

E. P. LIVINGSTON,
AMBROSE SPENCER,
JACOB MORRIS,
ROBERT S. ROSE,
} *Vice-Presidents.*

P. S. VAN RENSSELAER, *Recording Secretary.*

JESSE BUEL, *Corresponding Secretary.*

CHARLES R. WEBSTER, *Treasurer.*

H. W. DELAVAN,
JOHN TOWNSEND,
H. HICKOX,
} *Executive Committee.*

A general committee was appointed in each county, of as many individuals as it delegated members to the Assembly, embracing, as was intended, some of the most efficient friends of agriculture in the State; and a series of resolutions, including, among other things, the establishment of an agricultural school, and the propriety of holding annual fairs, were adopted. The following circular, which was issued by the corresponding secretary, will very fully explain the objects and views of the Society:

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CIRCULAR.

Albany, February 24, 1832.

SIR:

You will perceive by the pamphlet which accompanies this, that a State Agricultural Society has been organized for the purpose of improving our husbandry, horticulture and household arts, and that you have been designated as one of a general committee to aid in the furtherance of these objects of public utility.

Without presuming to dictate or to limit the exertions of the general committee, I would respectfully suggest that the following, among other objects, will particularly merit their attention:

1. To encourage and promote the organization of county or local societies of agriculture and horticulture, as a means of exciting laudable emulation, and of promoting habits of industry, economy of labor, and improvement in the moral and social condition of society.

2. To add to the numbers and means of the State Society, by soliciting names to its constitution, and contributions to its funds, As the Society pays neither salaries nor perquisites, its funds will be exclusively devoted to public and useful objects; and it is believed the members will receive an equivalent for their subscription in the publications they shall become entitled to. The benefits which the Society shall be able to dispense will therefore be measured by the extent of its funds.

As one of the most efficient means of diffusing information, and thereby increasing its usefulness, the Society contemplate the publication of a periodical work, devoted exclusively to improvements in the rural arts. The better to enable them to fulfil their wishes in this respect, permit me, in the third place, to solicit communications, as well from others, as from the members of the general committee, of well attested experiments and facts.

1. *In Stock Husbandry*—In relation to the breeding, management, habits, diseases, and the means of prevention and cure of all kinds of domestic animals; methods of fattening and choice of breeds.

2. *In Tillage Husbandry*—In relation to the cultivation of grains, grasses, field vegetables, and other useful products; manures and their application, including lime, gypsum, and marls; rotation of crops, improvement of implements, new articles of culture, draining, fences, including live fences, the orchard, and manufacture of cider.

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3. *In Horticulture*—In reference to the culture of fruit and ornamental trees, shrubs, plants, and methods of propagating them ; the diseases to which they are incident, and the insects that do them injury, and the methods of prevention and cure ; culinary vegetables and the flower garden.

4. *In the Household Arts*—Embracing household fabrics, rearing of silk worms, manufacture of butter and cheese, of domestic wines, the preservation of fruits, and their various preparations in household economy, &c.

By collecting together the practical knowledge of our best farmers, and gardeners, in their respective branches of labor, a very valuable fund of information will be obtained, which, while it impoverishes not the contributors, cannot fail to enrich, very greatly, the community at large. Such contributions, like the offerings of charity, are blessed to the giver as well as the receiver. It is a satisfaction, perhaps somewhat peculiar to the philanthropic tiller of the soil, that while he is improving by intelligence, skill, and industry, his own temporal and moral condition, he is by his example, benefitting those around him, and that his benefactions, in this way, are co-extensive with the knowledge and importance of his improvements.

Your name has been inserted on the general committee, under the impression that the Society would find in you an efficient co-operator, in their labors of usefulness. Should you, however, unexpectedly decline the duties which the appointment imposes, I beg to be notified thereof, as early as may be convenient,that the Executive Committee may appoint another in your stead.

As the Society propose to issue their first publication in the present year, it is desirable that communications intended for the publication, the invitation for which is intended to be general, should be forwarded to me as early in the autumn as may be convenient.

Very respectfully,

JESSE BUEL, *Cor. Sec'y.*

The Society, the same winter, applied to the Legislature for an act of incorporation, and the following law was passed :

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An act to incorporate the New-York State Agricultural Society, passed April 26, 1832.

The People of the State of New-York, represented in Senate and Assembly do enact as follows:

§ 1. The New-York State Agricultural Society, shall by that name and style be known, for the term of twenty years, as a body politic and corporate.

§ 2. The object of the Society, being to improve the condition of agriculture, horticulture, and the household arts, they shall be allowed for those purposes only, to take and hold real and personal estate, the former to the amount of twenty-five thousand dollars.

§ 3. The said corporation shall possess the general powers, and be subject to the liabilities and provisions contained in Title third of the eighteenth Chapter of the first Part of the Revised Statutes.

§ 4. The Legislature may at any time alter, modify, or repeal this act.

The results flowing from the organization of the State Society, owing to causes which it is not necessary here to explain, (but the principal of which was the want of legislative patronage and encouragement,) were not such as had been hoped for by the patriotic and devoted friends of agriculture. The meetings were annually held, and the ordinary business of the Society transacted, but there was little general interest manifested in the matter, and the funds of the Society did not warrant the establishment of annual fairs. Still much good was accomplished; public opinion was enlightened; much important information was collected; and under the patronage, and as the organ of the Society, the Cultivator was established by Judge Buel, in March, 1834. Many important reports and papers were presented at the annual meetings of the Society, which will be found in the Cultivator.

II. REPORT OF THE EXECUTIVE COMMITTEE FOR 1841.

In 1841, it was determined to make an effort for a more efficient organization, and a more vigorous prosecution of the designs of the Society; and the opinion of the agricultural community as indicated by the public press, seemed to indicate that such an organization would receive the countenance and aid of the State. Accordingly, at the annual meeting of the Society, held at Albany February 10th, 1841, the

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following revised constitution of the State Society was presented and unanimously adopted :

Constitution of the New-York State Agricultural Society, as amended February 10, 1841.

The style of this society shall be "The New-York State Agricultural Society;" its objects shall be to improve the condition of agriculture, horticulture and the household arts.

Section 1. The Society shall consist of such citizens of the State as shall signify in writing their wish to become members, and shall pay on subscribing not less than one dollar, and annually thereafter not less than one dollar, and also of honorary and corresponding members.

The presidents of county agricultural societies, or a delegate from each, shall ex-officio be members of this Society.

The payment of fifty dollars or more, shall constitute a member for life, and shall exempt the donor from annual contributions.

Sec. 2. The officers of the Society shall consist of a president, eight vice-presidents, one to be located in each Senate District; a recording secretary, a corresponding secretary, a treasurer, an executive committee, to consist of the officers above named and five additional members, of whom three shall constitute a quorum, and a general committee, the members of which shall be located in the several counties, and be equal to the representatives in the House of Assembly.

Sec. 3. The recording secretary shall keep the minutes of the Society.

The corresponding secretary shall carry on a correspondence with other societies, with individuals, and with the general committee, in furtherance of the objects of the Society.

The treasurer shall keep the funds of the Society, and disburse them on the order of the president or a vice-president, countersigned by the recording secretary; and shall make a report of the receipt and expenditures at the annual meeting in January.

The Executive Committee shall take charge of and distribute or preserve all seeds, plants, books, models, &c., which may be transmitted to the Society; and shall also have the charge of all communications,

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designed or calculated for publication, and so far as they may deem expedient, shall collect, arrange and publish the same in such manner and form as they shall deem best calculated to promote the objects of the Society.

The general committee are charged with the interests of the Society in the counties in which they shall respectively reside, and will constitute a medium of communication between the Executive Committee and the remote members of the Society.

Sec. 4. There shall be an annual meeting of the Society on the third Wednesday of January, in the city of Albany, at which time all the officers shall be elected by a plurality of votes and by ballot, with the exception of the general committee for the counties which may be appointed by the Executive Committee, who shall have power to fill any vacancies which may occur in the officers of the Society during the year. Extra meetings may be convoked by the Executive Committee. Fifteen members shall be a quorum for the transaction of business.

Sec. 5. The Society shall hold an annual cattle show and fair at such time and place as shall be designated by the Executive Committee.

Sec. 6. This constitution may be amended by a vote of two-thirds of the members attending any annual meeting.

A committee appointed to nominate officers, made their report, and the following gentlemen were unanimously elected officers of the society for 1841 :

JOEL B. NOTT, of Albany, *President.*

Vice Presidents.

1st district, JEREMIAH JOHNSON, of Kings.
2d do ROBERT DENNISTON, of Orange.
3d do CALEB N. BEMENT, of Albany.
4th do EDWARD C. DELAVAN, of Saratoga.
5th do BENJAMIN P. JOHNSON, of Oneida.
6th do LEWIS A. MORRELL, of Tompkins.
7th do WILLIS GAYLORD, of Onondaga.
8th do T. C. PETERS, of Genesee.

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Additional members of the Executive Committee.

Alexander Walsh, of Rensselaer.
George Vail, of Rensselaer.
Henry D. Grove, of Rensselaer.
A. L. Linn, of Schenectady.
John McD. McIntyre, of Albany.

Henry S. Randall, of Cortland, *Cor.Sec'y.*
Ezra P. Prentice, of Albany, *Treasurer.*
Luther Tucker, of Albany, *Recording Sec'y.*

For the purpose of obtaining information on some of the most essential points of husbandry, on the motion of C. N. Bement, Esq. it was

Resolved, That the Executive Committee be requested to procure reports from different members of the society, on the following subjects, to be presented at the semi-annual meeting:

1. On the most approved method of stall feeding oxen and other neat cattle.

2. On converting green crops and other vegetable matters into manure.

3. On the best method of increasing manure and forming a compost.

4. On the proper time to cut timothy and other grasses, and the most approved method of curing the same.

5. On the comparative economy of employing oxen and horses in the usual business of the farm.

6. On the comparative economy of potatoes, ruta baga, carrots or beets, as food for cattle, sheep and swine.

7. On the relative value of apples as food for swine, or other domestic animals, compared with making them into cider.

8. On the best means of eradicating Canada thistles.

In pursuance of resolutions adopted at this meeting, a memorial was presented to the Legislature then in session, for aid from the State, in carrying out the objects of the Society, and the advancement of domestic industry generally, and the committee of that body, to which the subject was referred, reported in favor of the petitioners, and the bill presented by them, became a law on the 5th of May.

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An Act for the encouragement of Agriculture.

[Passed May 5, 1841.]

The People of the State of New-York, represented in Senate and Assembly, do enact as follows:

§ 1. The sum of eight thousand dollars per annum, shall be and hereby is appropriated for the term of five years, for the promotion of agriculture and household manufactures in this State, in the manner following, to wit: to the county of

Albany,	$205
Allegany,	123
Broome,	67
Cattaragus,	86
Cayuga,	151
Chautauque,	143
Chemung,	62
Chenango,	122
Clinton,	84
Columbia,	133
Cortland,	75
Delaware,	106
Dutchess,	157
Erie,	186
Essex,	71
Franklin,	50
Fulton and Hamilton,	60
Genesee,	179
Greene,	91
Herkimer,	112
Jefferson,	183
Kings,	143
Lewis,	53
Livingston,	117
Madison,	120
Monroe,	194
Montgomery,	107
New-York to Am. Institute,	950
Niagara,	93
Oneida,	255
Onondaga,	204

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Ontario,	130
Orange,	152
Orleans,	75
Oswego,	131
Otsego,	148
Putnam,	38
Queens,	91
Rensselaer,	180
Richmond,	34
Rockland,	36
Saratoga,	121
Schenectady,	51
Schoharie,	97
Seneca,	74
Steuben,	138
St. Lawrence,	170
Suffolk,	97
Sullivan,	47
Tioga,	61
Tompkins,	114
Ulster,	137
Warren,	40
Washington,	123
Wayne,	126
Westchester,	146
Yates,	61
N. Y. S. Ag. Society,	700

§ 2. When the New-York State Agricultural Society, and any county agricultural society now formed, or which may hereafter be formed in this State, or the American Institute in the city of New-York, shall raise by voluntary subscription any sum of money, the president and treasurer shall make and subscribe an affidavit of the facts of the formation of such society, and of their having raised a certain sum, specifying the amount thereof, which affidavit shall be filed with the Comptroller of this State, who shall draw his warrant on the Treasurer for a sum equal to the amount of such voluntary subscription, not however exceeding the amount to which such county or State society would be entitled, according to the apportionment aforesaid.

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§ 3. The New-York State Agricultural Society and the several county agricultural societies now formed or which shall be formed in this State, during the continuance of this act, shall annually elect such and so many officers as they shall deem proper; and it shall be the duty of such officers annually, to regulate and award premiums on such articles, productions and improvements, as they may deem best calculated to promote the agricultural and household manufacturing interests of this State, having especial reference to the nett profits which accrue, or are likely to accrue from the mode of raising the crop or stock, or the fabrication of the article thus offered, with the intention that the reward shall be given for the most economical or profitable mode of competition; provided always that before any premium shall be delivered, the person claiming the same, or to whom the same may be awarded, shall deliver in writing to the president of the society as accurate a description of the process in preparing the soil, including the quantity and quality of manure applied, and in raising the crop, or feeding the animal, as may be; and also of the expense and product of the crop, or of increase in value of the animal, with the view of showing accurately the profit of cultivating the crop, or feeding or fattening the animal.

§ 4. The president of the State Agricultural Society, and the several presidents of the said county societies, who shall receive or expend any of the moneys hereby appropriated, shall annually, in the month of December, transmit to the Comptroller a detailed account of the expenditure of all the moneys which shall come into their hands under this act, and stating to whom and for what purpose paid, with the vouchers thereof; and the said presidents of the several county agricultural societies, shall annually transmit in the month of December, to the Executive Committee of the New-York State Agricultural Society, all such reports or returns as they are required to demand and receive from applicants for premiums, together with an abstract of their proceedings during the year.

§ 5. The Executive Committee of the New-York State Agricultural Society shall examine all reports and returns made by the presidents of the county agricultural societies, and condense, arrange and report the same, together with a statement of their own proceedings, to the Secretary of State, in the month of January in each year.

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§ 6. The presidents of the several county societies, or delegates to be chosen by them annually for the purpose, shall be ex-officio members of the New-York State Agricultural Society.

§ 7. It shall be the duty of the county clerks in the several counties of this State, to cause notice to be given in one or more newspapers in each county of the time and place of a meeting to be held in such county for the purpose of organizing such county agricultural society; and notice thereof shall be given at least four weeks previous to such meeting.

§ 8. This act shall take effect immediately.

State of New-York, Secretary's Office.

This act having been approved and signed by the Governor, on the 5th day of May, 1841, I do hereby certify that the same became a law on that day.

JOHN C. SPENCER,
Secretary of State.

It will be seen by a reference to the revised constitution of the Society, that a new and more efficient form had been given to the Executive Committee. Meetings of this committee were held on the third Wednesday of every month, at which measures calculated to advance the interests of agriculture, and the objects of the Society, were proposed and discussed, and their adoption or rejection determined.

At the meeting of the Executive Committee in April, the following resolution, on motion of Mr. Randall, seconded by Mr. Walsh, was adopted unanimously:

Resolved, That the New-York State Agricultural Society will hold its annual fair in the village of Syracuse, on Wednesday and Thursday, the 29th and 30th days of September next.

At the same meeting Messrs. Randall, Bement and Tucker were appointed to make out and report complete at the next monthly meeting, a premium list. At the meeting of the committee in May, the following list of premiums was presented and adopted:

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LIST OF PREMIUMS.

ON CATTLE.

I. BULLS—*Of any breed, 3 years old and over.*

For the best,..... $20
For the second best,..... 12
For the third best,..... 8
For the fourth best, ... *Diploma.*

II. BULLS—*Of any breed, over 2 and under 3 years old.*

For the best,..... $20
For the second best, ... 12
For the third best,..... 8
For the fourth best, ... *Diploma.*

III. BULLS—*Of any breed, under 2 years old.*

For the best,..... $12
For the second best, ... 8
For the third best,..... 5
For the fourth best, ... *Diploma.*

IV. COWS—*Of any improved breed, 3 years old and upwards.*

For the best,..... $20
For the second best,..... 12
For the third best,..... 8
For the fourth best, ... *Diploma.*

V. HEIFERS—*Of any improved breed, 2 years old and over.*

For the best,..... $12
For the second best,..... 8
For the third best,..... 5
For the fourth best, ... *Diploma.*

VI. HEIFERS—*Of any improved breed, under 2 years old.*

For the best,..... $10
For the second best, ... 5
For third best,..... *Diploma.*

VII. COWS—*Cross between the native and improved breeds.*

For the best,..... $12
For the second best, ... 9
For the third best,..... 6
For the fourth best, ... *Diploma.*

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VIII. HEIFERS—*Cross between the native and improved breeds.*

For the best,	$10
For the second best,	8
For the third best,	5
For the fourth best,	*Diploma.*

IX. Cows—*Native breeds.*

For the best,	$10
For the second best,	8
For the third best,	5
For the fourth best,	*Diploma.*

The greatest combination of those points or properties which indicate milking qualities and an aptitude to take on flesh on the more valuable parts, together with general beauty of form, (size in itself not being considered a criterion of excellence, will be the considerations which will govern the viewing committee in awarding premiums in the above classes.

ON HORSES.

For the best stallion,	$20
For the second best,	12
For the third best,	8
For the fourth best,	*Diploma.*
Best breeding mare and colt,	$20
For the second best,	12
For the third best,	8
For the fourth best,	*Diploma.*

A variety of horses possessing size, strength, and endurance for field labor, combined with that action which qualifies for the carriage or saddle—in short, the horse *of all work*, is probably the most profitable class which our farmers can now engage in rearing, and to such therefore, will the preference of the Society be given.

SWINE—*Over* 10 *months old.*

For the best boar,	$10
For the second best,	8
For the third best,	5
For the fourth best,	*Diploma.*
For the best breeding sow,	$10
For the second best,	8

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For the third best,..... $5
For the fourth best..... *Diploma.*

In awarding premiums on hogs, reference will not be had exclusively to size, or to present condition, but to that form and that proportion of bone and offal to more valuable parts, which promises the greatest value from the least amount of feed.

SHEEP—I. LONG WOOLED.

For the best Buck,..... $10
For the second best,..... 5
For the third best, ... *Diploma.*
For the second best,..... 5
For the third best, ... *Diploma.*
For the best pen of three Ewes,..... 10

II. MIDDLE WOOLED.

For the best Buck,..... $10
For the second best,..... 5
For the third best, ... *Diploma.*
For the best pen of three Ewes,..... 10
For the second best, ... 5
For the third best, ... *Diploma.*

III. FINE WOOLED.

For the best buck, ... $10
For the second best, ... 5
For the third best,..... *Diploma.*
For the best pen of three Ewes,..... 10
For the second best,..... 5
For the third best, ... *Diploma.*

The term "long wooled" is designed to include the Leicesters, Lincolns, Cotswolds, and all the English varieties of sheep which furnish the quality of wool suitable for combing; the "middle wooled," the South Down, Norfolk, Dorset, Cheviot, native, &c.; the "fine wooled," the Spanish and Saxon varieties of the Merino, and some of their crosses.

FARM IMPLEMENTS.

For the best *Plough*,..... $30
For the second best,..... 20
For the third best,..... 10

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For the fourth best,..... *Diploma.*
For the best *Harrow*,..... 8
For the second best,..... 5
For the third best, ... *Diploma.*
For the best *Cultivator*,..... 8
For the second best,..... 5
For third best,..... *Diploma.*
For the best *Drill Barrow*,..... 8
For the second best,..... 5
For the third best, ... *Diploma.*
Best *Thrashing Machine*,..... 20
For the second best,..... 10
For the third best, ... *Diploma.*
For the best *Horse Rake*, ... 8
For the second best,..... 5
For the third best,..... *Diploma.*
For the best *Fanning Mill*,..... 8
For the second best,..... 5
For the third best,..... *Diploma.*
For the best *Straw Cutter*, ... 8
For the second best,..... 5
For the third best,..... *Diploma.*

Discretionary premiums will also be awarded to manufacturers of the best sub-soil and side-hill ploughs, hoes, shovels, spades, forks, rakes, and other farming utensils.

The economy and durability, as well as the excellence, in other respects, of farming implements, will be taken into consideration.

Discretionary premiums will be awarded for the best samples and best varieties of winter and spring wheat, corn, rye, barley, oats, peas, beans, buckwheat, hemp, flax, broom corn, maple and beet root sugar, &c. &c.

Also, potatoes, turnips, sugar beets, mangel wurtzel, carrots, pumpkins and horticultural products generally.

Also, fruits of all kinds and flowers.

The varieties, when different from those in common use, should be properly explained, the method of culture, &c.

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The following list of premiums was also agreed upon for distribution at the annual meeting of the Society, at Albany, in January, 1842:

BUTTER AND CHEESE.

For the best sample of *Butter*, not less than100 lbs., .. $20
For the second best,..... 12
For the third best, ... 8
For the fourth best,..... 5
For the fifth best,..... *Diploma.*
For the best sample of *Cheese*, not less than 100 lbs... $20
Nor the second best, ... 12
For the third best,..... 8
For the fourth best,..... 5
For the fifth best,..... *Diploma.*

FIELD CROPS.

For the best acre of *Wheat*, ... $20
For the second best,..... *Diploma.*
For the best acre of *Barley*, ... 15
For the second best,..... *Diploma.*
For the best acre of *Rye*,..... 15
For the second best,..... *Diploma.*
For the best acre of *Oats*, ... 15
For the second best,..... *Diploma.*
Best acre of *Indian Corn*,..... 20
For the second best,..... *Diploma.*
The best acre of *Potatoes*,..... 15
For the second best,..... *Diploma.*
Best acre of *Sugar Beets*,..... 15
For the second best ..... *Diploma.*
Best acre of *Ruta Baga*, ... 15
For the second best,..... *Diploma.*
The best acre of *Carrots*, ... 15
For the second best..... *Diploma.*
For the best acre of *Peas*, ... 15
For the second best,..... *Diploma.*

This last list of premiums, was, at the meeting of the Executive Committee held in October, somewhat modified and enlarged, the state of the funds authorizing such addition. The following proceedings will show these changes, and the rules adopted in the distribution of the premiums.

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At a meeting of the Executive Committee, held at Albany, on the 20th October, A. Walsh, Esq. of Lansingburgh, in the chair, it was unanimously resolved, that the premium list for field crops and butter and cheese, be enlarged and amended so as to read as follows:

PREMIUMS ON BUTTER AND CHEESE.

For the best sample of butter, not less than 100 pounds,	$30
For the second best do do	20
For the third best do do	10
For the best sample of cheese, over one year old, not less than 100 pounds,	20
For the second best do do	10
For the best do., less than one year old, not less than 200 pounds,	20
For the second best do do	10

The butter offered for premiums may be presented in tubs, jars or firkins. Each lot must be numbered but not marked, and any public or known mark must be completely concealed, nor must the competitors be present. In default of either of these requisitions the claimant will not be entitled to a premium.

The claimant for premiums on butter, must state in writing, the number of cows kept on his farm; his mode of keeping; the treatment of the cream and milk before churning; the mode of churning, winter and summer; the method of freeing the butter from the milk; the quantity and kind of salt used; whether saltpetre or any other substances have been employed; the best time for churning and keeping butter in hot weather; and the best mode of preserving it in and through the summer and winter, and in what vessels.

Those who present cheese for the premiums offered, must state in writing the number of cows kept; whether the cheese is made from one, two or more milkings; whether any addition is made of cream; the quantity and kind of salt used; the quantity of rennet used and the mode of preparing it; the mode of pressure, and the treatment of the cheese afterwards.

PREMIUMS FOR FIELD CROPS.

For the best acre of *Wheat*,	$20
For the second best,	10
The best acre of *Barley*,	15
For the second best,	8

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For the best acre of *Rye*,	$15
For the second best,	8
For the best acre of *Oats*,	15
For the second best,	8
Best acre of *Indian Corn*,	20
For the second best,	10
The best acre of *Potatoes*,	15
For the second best,	8
Best acre of *Sugar Beets*,	15
For the second best,	8
Best acre of *Ruta Buga*,	15
For the second best,	8
The best acre of *Carrots*,	15
For the second best,	8
For the best acre of *Peas*,	15
For the second best,	8

Those who present claims to premiums for farm crops, must state in writing the following particulars: the condition of the soil at the commencement of cultivation for the crop; the previous cultivation, product and manure used upon it; the quantity of manure the present season; the quantity of seed used; the time and manner of sowing, cleaning, and harvesting the crop; the amount of the crop determined by actual measurement; and the expense of cultivation. The land shall be measured by some sworn surveyor, and the claimant of the premium, with one other person, shall certify to the above particulars.

Applicants for the premiums on butter, cheese and farm crops, must make known their determination to Luther Tucker, Albany, (if by letter, post-paid,) on or before the first of January next, and the parcels deposited in such place in Albany, as the Executive Committee may hereafter direct, on Tuesday morning, the 18th of Jan. before 10 o'clock, at which time the committee will proceed to examine the lot offered for premiums.

At the same meeting of the Executive Committee, on the motion of Willis Gaylord, Esq. Miss Margaretta Morris, of Germantown, Pa., John Hannam, Esq. North Deighton, Yorkshire, England, and Elias Phinney, Esq. of Lexington, Mass., were unanimously elected honorary members of the New-York State Agricultural Society.

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At the meeting of the Executive Committee at Syracuse, in September, the following gentlemen were appointed viewing committees for the awarding of the premiums offered; and a series of rules adopted for the regulation of the fair.

VIEWING COMMITTEES.

ON CATTLE.

Class I. Bulls—*Of any breed, 3 years old and upwards.*

Henry S. Randall, Cortland,
A. B. Allen, Erie,
C. N. Bement, Albany,
William Garbutt, Monroe,
J. McDonald McIntyre, Albany.

Classes II. and III. Bulls—*Of any breed, under three years old.*

Francis Rotch, Otsego,
Henry Rhoades, Oneida,
J. C. Hathaway, Ontario,
George Vail, Rensselaer,
George J. Pumpelly, Tioga.

Class IV. Cows—*Of any breed, 3 years old and upwards.*

Anthony Van Bergen, Greene,
E. P. Prentice, Albany,
Thomas Hollis, Otsego,
Ira Hitchcock, Oneida,
Hiram Bostwick, Chemung.

Classes V. and VI. Heifers—*Of any improved breed, under 3 years.*

Lewis F. Allen, Erie,
Silas Gaylord, Onondaga,
Thomas Weddle, Monroe,
John Gaskin, Otsego,
Jonah Davis, Chemung.

Class VII. Grade Cows.

Garret Sackett, Seneca,
C. S. Button, Wayne,
M. Bullock, Albany,
Thomas Goodsell, Oneida,
William Ottley, Ontario.

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Class VIII. GRADE HEIFERS.

S, W. Brace, Onondaga,
John M. Sherwood, Cayuga,
Willam Alexander, Otsego,
D. D. Campbell, Schenectady,
Rufus Boies, Cortland.

Class IX. Cows—*native breeds.*

Myron Adams, Ontario,
Thomas S. Meacham, Oswego,
Aaron Barns, Oneida,
—— Crane, Herkimer,
Tyler Fountain, Westchester.

ON HORSES.

William T. Porter, New-York,
Lewis F. Allen, Erie,
William Bartlit, Cortland,
John J. Viele, Rensselaer,
William B. Ludlow, Columbia.

ON SHEEP—Class I. *Long-Wooled.*

John P. Beekman, Columbia,
John Snooks, Onondaga,
Thomas Jackson, Otsego,
William C. Cornell, Monroe,
John Holmes, Washington.

Class II. *Middle Wooled.*

A. B. Allen, Erie,
Thomas Dunn, Albany,
L. D. Clift, Putnam,
Howell Gardiner, Saratoga,
William Musson, Otsego.

Class III. *Fine Wooled.*

William Randall, Cortland,
Henry D. Grove, Rensselaer,
L. A. Morrell, Tompkins,
J. W. Kneevels, Dutchess,
Robert C. Nicholas, Ontario.

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On Swine.

John Randall, Chenango,
Ezra Cornell, Tompkins,
Nelson Washburn, Otsego,
Elon Comstock, Oneida,
William Salisbury, Greene.

On Plows.

Henry Burden, Rensselaer,
Anthony Van Bergen, Greene,
Jeremiah Johnson, Kings,
John J. Thomas, Ontario,
Rawson Harmon, Jr. Monroe,
Humphry Howland, Cayuga,
Henry Stephens, Cortland,
Elias Phinney, Massachusetts,
Isaac Hill, New-Hampshire,
S. W. Jewett, Vermont.

On Cultivators, Drill Barrows and Harrows.

James McCall, Allegany,
L. C. Ball, Rensselaer,
Enoch Marks, Onondaga,
George Walsworth, Oneida,
Arvin Rice, Oswego.

On Thrashing Machines.

L. B. Langworthy, Monroe,
Orville Hungerford, Jefferson,
G. W. Patterson, Livingston,
Lauren Beach, Onondaga,
Micah Brooks, Livingston.

On Horse Rakes and Straw Cutters.

Nicoll Halsey, Tompkins,
Jabez Burrows, Chautauque,
John B. Dill, Cayuga,
Hiram Hopkins, Cortland,
Chester Moses, Skaneateles.

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ON FARM IMPLEMENTS—*Not enumerated above.*

William Parsons, Niagara,
Samuel Hecox, Wayne,
Jesse Ives, Cortland,
Joseph Hastings, Rensselaer,
Ira Hopkins, Cayuga,

ON SAMPLES OF GRAIN.

Pomeroy Jones, Oneida,
George S. Taylor, Cortland,
Roswell Curtis, Cayuga,
Warner Abbott, Onondaga,
E. S. Beach, Monroe.

ON SAMPLES OF ROOTS.

Heman Chapin, Ontario,
S. P. Rhoades, Onondaga,
Lewis Eames, Oneida,
J. F. Osborn, Cayuga,
S. B. Burchard, Madison.

ON HORTICULTURAL PRODUCTS.

David Thomas, Cayuga,
Alexander Walsh, Rensselaer,
Grant Thorburn, Queens,
E. Holbrook, Dutchess,
Oliver Phelps, Ontario.

COMMITTEE OF ARRANGEMENTS.

State Society.

Henry S. Randall,
Harvey Baldwin,
Luther Tucker,
William Fuller,
M. B. Bateham.

Onondaga Co. Society.

P. N. Rust,
Jos. Savage,
M. D. Burnett,
E. F. Wallace,
J. M. Ellis.

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The following gentlemen were appointed a committee to solicit members and funds for the Society, at Syracuse:

M. D. Burnett, Esq.
H. Baldwin, Esq.
J. R. Lawrence, Esq.
B. D. Noxon,
P. N. Rust,
J. Sanford.

REGULATIONS FOR THE FAIR.

I. A committee of arrangements, consisting of five members will, in conjunction with a committee consisting of the same number, appointed by the Onondaga County Agricultural Society, exercise a general supervision and control on the day of the fair.

II. Clerks shall be appointed by the committee of arrangements, who shall occupy a convenient stand near the place of exhibition, who shall give to every one entering animals, cards, with the number of the pens which said animals shall occupy, and the premiums for which said animals are entered, written thereon; and such cards shall be conspicuously placed upon the pens containing the animals. A list of all such entries shall be kept by said clerks.

III. No animals shall be removed from the pens until the close of each day's exhibition without permission of a member of the committee of arrangements.

IV. Applicants for premiums on animals will be prepared with written statements, accurately detailing the age and method of feeding such animals; and those drawing premiums may be required to make oath to the correctness of said statements. Such written statements will be delivered to the clerks on entering the animals.

V. All animals will be examined and premiums awarded on the first day of the fair, and the viewing committees will commence their inspection at 10 o'clock, A. M. No spectators will be admitted to the yard, until after the viewing committees have performed their duties.

VI. Implements, products, &c. will be examined on the second day of the fair. Implements, particularly ploughs, will be put to a full and accurate test.

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VII. Any inhabitant of the State will be suffered to compete for premiums on animals and products, and any inhabitant of the United States for premiums on implements, on the payment of one dollar, if not already members of the Society.

VIII. Viewing committees shall in all cases have power to examine applicants for premiums personally, when more particular or satisfactory information is desired.

IX. No premiums shall be awarded without a competition, unless the viewing committee shall deem the animal, or product, or implement exhibited, highly meritorious; nor in cases where there is competition, unless they shall consider such animal, product, or implement worthy of the same.

X. All reports of viewing committees shall be made in writing, and signed by the members assenting thereto.

XI. All persons intending to compete for the premiums on animals, should give notice to that effect, on or before the 20th of September, to L. Tucker, Albany; H. S. Randall, Cortland village; M. B. Bateham, Rochester, or P. N. Rust, Syracuse, in order that the necessary accomodation may be made for them. It is desirable also that those who intend to compete for the prizes on implements should give notice as above by the 20th of September.

Owners of stock throughout the State, and manufacturers and patentees of agricultural and horticultural implements, throughout the United States, are invited to present their animals and implements. Samples of farm and garden products, silk, cocoons, domestic manufactures, &c., &c. are also solicited.

Discretionary premiums will be awarded on articles not enumerated in the prize list.

At the September meeting the following additional premiums were announced:

TO BREEDERS.

F. Rotch, Esq., having given the society $30 for that purpose, premiums will be awarded to breeders as follows:

To the breeder of the best thorough bred Bull,..... $10 00
To the breeder of the best thorough bred Cow,..... $10 00
To the breeder of the best thorough bred Heifer,... $10 00

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FOR WORKING OXEN.

Willis Gaylord, Esq., having contributed $20 dollars for that purpose, a premium will be given:

For the best yoke of working oxen,.....	$12 00
For the 2d best do do do,.....	8 00

In awarding this premium, particular reference will be had to the close matching, *excellent training*, and docility of the animals, as well as to their general good appearance. Committee: Abel Baldwin, David Bundy and Dan Hibbard.

FAT CATTLE.

P. M. Rust, Esq., offered a sweepstakes, of twenty dollars entry, for the best yoke of fat cattle. Committee: B. P. Johnson, B. D. Noxon and M. D. Burnett.

In accordance with these previous arrangements, the annual cattle show and fair of the Society was held at Syracuse, at the time previously designated by the Executive Committee. That committee are not aware that they can more fully comply with the law requiring this report, than by incorporating in this place the account of the proceedings furnished for the November number of the Cultivator.

CATTLE SHOW AND FAIR

Of the New-York State Agricultural Society, held at Syracuse, September 29, 30, 1841.

The 29th and 30th days of September were proud days for the State of New-York, commencing, as they did, a new era in our agricultural career; giving a well founded hope of many succeeding and still more triumphant gatherings of the bone and muscle of our country; and demonstrating to all, the wisdom of that legislation which has so successfully called this and so many other societies, having the same great object (the promotion of agriculture) in view, into a prosperous existence. Nothing could more satisfactorily show the interest which such anniversary exhibitions create, than the multitude of gratified spectators, variously estimated at from ten to fifteen thousand, principally farmers, from almost every county in the State, as well as the assemblage of distinguished agriculturists and other gentlemen from other States of the Union. Considered as a first Show and Fair

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of the Society, an experiment as it were, the meeting was an eminently successful one, although in some respects it cannot be doubted that succeeding ones will be superior.

In making the preparations for the Fair, too much praise can not be bestowed upon the committee of arrangements at Syracuse, particularly Messrs. Burnett and Baldwin, whose exertions and efforts to do justice to all during the two days, as well as in the preliminary proceedings, were well directed and untiring. The same spirit was evidenced by the public spirited citizens of Syracuse generally; and pleasant associations in the minds of those who for the first time have visited that flourishing city of central New-York, will doubtless long remain. The pens for the exhibition of animals were erected in a beautiful grove near the court house; and the court house itself was thrown open for the reception and exhibition of agricultural implements and products, and specimens of domestic manufactures. The number and variety of these things, however, was such that the halls allotted to their use were found insufficent, and utterly unable to accommodate the crowd of visitors who wished to inspect and examine them.

On the day previous to the opening of the Fair, a train of twenty-five cars, filled with choice animals from the vicinity of Albany, and from the river counties, left Albany for Syracuse. The counties around poured in their animals, implements, and products, and on the opening of the Fair on the 29th, Syracuse presented a scene of gratified interest, and a thronging population, never witnessed, unless during the immense mass meetings of the political parties at that point in the autumn of 1840. The concourse of farmers and mechanics, the producers of wealth, and the proud examples of the real dignity of labor, was unexpectedly great; and with these came the amateur farmer, the professional man, and all who felt an interest in the advance and prosperity of agriculture. The weather, during the two days of the Fair, was such as to prevent, in a great measure, the attendance of the ladies, although enough were present to show that in every thing that regards the public welfare, man may be sure of the cordial support and approbation of woman. The numerous and beautiful articles presented for exhibition, the evidences of female skill and industry, were much admired, and elicited deserved commendation.

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The first day was principally devoted to the examination of animals, implements, and articles presented. That as a first effort, some little irregularity and confusion should have taken place, that the committee should not have been as perfectly organized as they might have been, and that some mistakes in not properly noticing some animals or implements at the proper time, should have occurred, is not surprising, or to be wondered at; but the fine manner in which the whole came off, and the strong and general expressions of pleasure and satisfaction from all, showed that such mistakes were not permitted to mar the feelings, or disturb the harmony of the occasion. The number of animals on the ground for exhibition was great; and taken in connection with those of the Onondaga County Society, which held its meeting at the same time and place, the collection has been rarely equalled at any Fair hitherto held in this country. We may remark here, that great discrepancies appear in the reports of the proceedings furnished for many of the most prominent journals of our country, as to the number of animals present. These differences are accounted for by the fact that some give only those claiming the premiums offered by the State Society; others include in their estimate those presented to the county society for premiums; and some embrace all that were shown at the Fair, whether claiming premiums or not. We may here remark, too, that the patrons of the Onondaga County Society did not in general come forward as fully and strongly as they might and would have done with their fine animals and agricultural products, had they not relied on the State Society for the principal interest of the two days.

Our host of the Syracuse House found his powers of providing food for the multitude pretty well tested, and amply and honorably did they sustain themselves. Not far from twelve hundred partook of his splendid farmers' dinner on the first day. J. B. Nott, Esq., President of the Society, presided; and after the many good things on the table had been liberally proved, in a few well timed remarks, he introduced to the company that eminent western agriculturist, Solon Robinson, Esq., who was present, and who is so favorably known as the pioneer in that great undertaking, the formation of a National Agricultural Society. Mr. Robinson at once responded to the call, and in a speech of some fifteen minutes, fixed the attention of the hearers, by his well timed allusions and happy illustrations. The Hon. Micah Sterling, of Jefferson county, long a Senator from that district, and now well known as an agriculturist, being called upon, next addressed the company, as follows:

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Mr. President, and Gentlemen of the Society—An agricultural society has been organized in the county of Jefferson, and its prospect of success and usefulness is very fair. About three hundred farmers have already joined it; they have raised between four and five hundred dollars; they have held their first cattle show, which went off remarkably well; they distributed premiums to the amount of three hundred and eighty-four dollars.

When the law was first passed, appropriating a sum of money for the encouragement of agriculture, I had great doubts as to its expediency, and feared that evil rather than good would be its result. Indeed, I looked upon it as little else than a wanton waste of the public money, and had repeatedly, while a member of the Senate, voted against the passage of such a law, not from any intrinsic defect in the law or its policy, but because I had been convinced from experience it would do no good to vote away the money of the people to help them "who would not help themselves;" that the farmers were not awake to its importance; that public opinion was not prepared for it; that the practical agriculturists would not organize societies under the law, or if societies were established, it would be, as it had been heretofore, by a few theorerical, public spirited men, calling themselves farmers, but really not working men; that such societies would flourish for a while, make a show or two, and then die away, for the want of sound practical farmers to support them, whose honor and whose interest it was to keep them alive, but who had heretofore, from one cause or another, shown an unaccountable apathy in contributing time and money to the support of these societies; that his own county of Jefferson had shown a striking example of this fact. A society started there at an early date; and as long as it was supported by the mind and the purse of such excellent and eminent men as its worthy president, James Le Ray de Chaumont, that noble Frenchman who devoted his life to doing good, aided by such men as Gen. Jacob Brown and others, the society flourished; it gave a character to the farming and the stock of the county, and every thing went on admirably. The people and the farmers flocked to the cattle shows and fairs, and were delighted; they were pleasant and delightful holidays for the farmers, their sons and daughters; but when money was called for to pay the expenses of the premiums, &c., the practical, hard working farmers, with some noble exceptions, were nowhere to be found; they had gone home, and *forgot to leave their* dollar to help pay the expense. In a few years, God in his inscrutable wisdom removed some

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of these men by death; poverty overtook others; and the society, left to the guidance and support of the farmers alone, soon dwindled, and shortly expired.

Having seen the whole operation of this thing, I had little faith that any societies would succeed, established upon similar principles and having similar objects in view.

But from the indications which have been exhibited, since the passage of this law, in the county of Jefferson, and from the numbers and zeal, and the intelligence I see collected around me, I have changed my opinion, and think the prospect is now bright and cheering; that the law will prove beneficial, and that the county and State societies will succeed, as the real farmers show new life and vigor, and act as though they were resolved to unite their energies and place their own profession *in honor*, where it is *in fact*, among the most useful, happy, healthy and respectable occupations of man.

There are a variety of reasons which make me believe that a great and most beneficial change has spread over the State within the fifteen and twenty years past. The farmers of New-York have greatly increased in knowledge within that time; their sons too have come forward with more zeal, more time and more intelligence than their fathers possessed. The circulation of information is much more general, more active, and of a more useful nature than it was. Our agricultural papers scatter much light and knowledge in all parts of the State, and are inculcating the right spirit into the farmers and their sons—they are no longer ashamed to be called farmers; and they begin to see and to feel that they are on the right road to health, to happiness and to fortune.

Our rich men begin to see that they had better make farmers of their sons than lawyers or doctors, if they want them to live long and be blessed with comfort, health, a clear conscience and a competent fortune. It begins to be well understood, that here, as in England, our land owners are destined to be the great men of the nation, its defence, its support, and its honor. Let them be well educated, and they are sure of this; for against them there are no deeply rooted prejudices, but they are now greatly excluded from office, and have to yield to awyers and doctors, from the inferiority of their education, not of their moral or mental worth.

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It is a truth too, beyond all doubt, and as gratifying as it is true, that the number of wealthy and independent farmers has greatly increased within the last quarter of a century.

I can only speak particularly of my own county, where it is a blessed sight to travel among the farmers, and see how in a short time things have changed their appearances for the better—how the log cabin has yielded to the beautiful stone, or brick, or wooden mansion; the barn of poles to the stately edifice of boards and timbers; the front yard of dirt and filth to the neat lane and shrubbery; and how the whole country has assumed or is rapidly assuming that appearance of neatness, beauty, high cultivation, and comfort, which all American farmers, with honesty, industry and economy, can soon attain to. I dare say other parts of the State are equally changed for the better, and equally sustain the great cause of cultivation and improvement. Add to all this, many men of wealth and taste and science, have devoted their time, and a portion of their wealth, within a few years past, to the importation and rearing of the first order of stock; and while it is hoped they are increasing their ample fortunes, they are becoming the true benefactors of the country, and take an active and prominent part in sustaining the cause of home industry and agriculture.

It is needless to mention their names. One such man makes himself sufficiently conspicuous by the good he does and the gratitude and respect he commands.

The result of this increase of wealth and intelligence among the farmers is, that they become more patriotic, more social and more communicative. They are not like other professions—they have no professional secrets—on the contrary, they take a pleasure in communicating whatever will interest, or please, or be useful to their neighbors—if they have a better breed of pigs, cattle or horses, they do not strive to monopolize it; and if they have discovered any thing new in the cultivation of the earth, they disclose it to their neighbors with pleasure and pride. This makes them desire to congregate together, exhibit what they have to show, and communicate what they have to teach and enjoy, at least once a year, the "jubilee" of the farmer. In a country like this, where there are so few holidays of any sort, how reasonable and proper this is, especially since the days of rum drinking are gone by, and they collect and part like temperate and rational men.

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Society must arrive at a certain pitch as to knowledge, wealth and comfort, before this can take place. Nor does it detract in the least from the merits of the "pioneers" of the wilderness. Their means were too stinted and their occupations too severe to do any thing but to provide the immediate necessaries for themselves and their families.

It is also a truth not to be lost sight of, that we have now a fund of experience, partly growing out of the existence of the old societies, partly from the natural course of events, to direct us in the management of these societies, which we did not formerly possess. One great evil we met with in those days was the mode in which premiums were distributed. It seemed on some occasions like a mere scramble for money, instead of reputation; the consequence was that we saw little of that disinterested spirit which should characterize alike the disappointed and the successful candidate; and heart burnings and bitter rivalships frequently grew out of it, which misrepresented and impugned the motives of the judges and operated unfortunately.

More or less of this will perhaps now exist, but if good judgment and great precaution are used, most of it can now be avoided, the more easily from the superior intelligence which now prevails. Another way to avoid it is to gratify as many competitors as possible, and for this reason make the premiums more extensive and general, and give them more weight in character than in money.

With all the advantages arising from this increased wealth and progress in knowledge, if the great body of our hard-working farmers will lend their aid in time and money (and but very little from each is needed,) the society is sure to succeed; a noble impulse will be given to the cause of agriculture; and the beneficial operation of the law be felt in all branches of the community. Wealthy and public spirited citizens will be found among our rich merchants and professional men of age and leisure, who will take pleasure and pride in seconding the efforts of the farmers; and thus an institution will be handsomely sustained, calculated to add greatly to the wealth, power and reputation of the State of New-York.

One great advantage, if no other, will grow out of these annual meetings. It will convene together in one great social body all the leading and efficient friends of agriculture in the State. These meetings will be composed of a high order of men, of congenial feelings and occupations.

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Their views will be similar, their objects will accord, their meetings will be social and friendly; they will meet in good cheer, act in concert, and part with the kindest feelings. Can any thing but unmixed good come out of such an association? Party spirit and sectarianism will be banished, and no interest will claim attention but such as a gentleman and a Christian can conscientiously support. Such meetings will serve to bind together our republic, and would be useful, even did they not give a new impulse and an additional character to the most useful, necessary and healthy of all occupations. The scene before me of hundreds of happy, intelligent, independent farmers, collected from all parts of the State, not to engage in political strife and quarrel about office, but met together for their country's good, consulting how best to promote the farming interest, with no jarring interests, and no heart burnings of any sort, but good will and benevolence smiling in every countenance, is one of unalloyed pleasure and satisfaction.

The county societies will send their delegations, and thus you will have combined in one body, on any anniversary of the society, an immense mass of intelligence, congregated from every section of the State, bringing into social and happy and profitable intercourse, those who would otherwise be strangers; and who, by their proceedings, will collect and embody an abundance of useful information, not only upon farming, but upon other great interests of the State. One subject will preëminently claim their attention, for in travelling to this place it will be deeply impressed upon their minds. I mean that of "internal improvement." *This should never be lost sight of;* and depend upon it, if our legislators do, the people will not; and if you who have already had your railroads and canals will not help others, we will knock at the doors of your Legislative halls till you shall hear us; yes, and aid us too, especially when you are about to have from the public lands $480,000 a year, and an enormous income from your canals and salt duties. As farmers have no professional secrets, as they delight to communicate all their discoveries and improvements, and exhibit the best specimens of their skill and their flocks, these meetings cannot be otherwise than useful, as well as most interesting and agreeable. As the occupation of the plough is of no party, as the times are those of temperance, as farmers are characterized by the love of order as well as zeal for the public welfare, being identified with the soil, as they justly realize their responsibilities, being the foundation on which rests the happiness and subsistence of all, there is no danger of any sort to be apprehended from these gatherings, but that they will come and pass

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off as the jubilees of the farmers always do, with the greatest order and decorum.

If husbandry is made respectable, as it ought to be, it will serve to check one of the greatest evils that bears now heavily upon the community—the rush of our young men into the learned professions, which are already filled to the overflowing, especially that of the law, which, under the present wretched course of legislation, of making litigation cheap, is starving this once honorable and most useful profession.

Yet it is thought to be the high road to office and honor, and ambitious fathers and weak mothers are for making their sons great lawyers and eminent judges. Infatuated policy! The greater share of them never rise higher than respectable pettifoggers. Many of them get disheartened, sink into dissipation and idleness; the best—yes, the very best lead lives of labor and anxiety, drag through a life of dyspepsia and "blue devils," and if they arrive at rank and office, they are made perfect slaves of, with half pay, and get more curses than blessings from their constituents.

The business of the farmer knows no such anxiety; is accompanied with no such risks; it is quiet and peaceful. Make it intelligent, and you open to it the first and highest honors of your country; there are no prejudices against it as against that of the law; there is no limit to it; it is broad and extensive enough for all; a rich and broad domain, the vast possessions of the government lie open to us—it invites to cultivation and improvement. If our rich men will plant themselves in the country, and educate their sons to the care and knowledge of the farm, they would see the land smiling around them, their children be honored in their industry, the occupation of the plough be elevated and respected, their sons prove healthy, robust and strong men, and they and their descendants become, as the landholders are in England, the great men and strong props of the government. Hard and incessant toil is not essential in any farmer, nor any toil equal to the exhausting unhonored labors of the lawyer and mechanic—a few hours a day devoted to the regulation and superintendance of the farm, affording a most wholesome and agreeable exercise to the body, is all that is requisite in the independent farmer; reading, writing, &c., will pleasantly and profitably occupy the rest of the day.

To my brother lawyers in particular, would I recommend this kind of life as the happiest and the best. They are capable of making good

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farmers, and when advanced in life they are fit for little else; the strife and rivalship of the law are neither suited to their own temper nor taste. They are often, if not generally, first and foremost in every good work. Let them set the example in this. I regret not meeting more of them on this occasion. It is said to be dull times for them—three hundred are said to have cleared out from the city of New-York. I hoped to have met some of them here; the country and the plow will receive them with open arms, and give them plenty of honest business. There is room enough for them all. I offer my own experience as a slight and humble instance of what may be easily effected. I have had the pleasure of superintending a farm, I have succeeded to my entire satisfaction; my farm is growing up under my own eye, yearly developing new beauties and new sources of income and improvement; and if it does not make me a richer, it makes me a healthier, and I trust a better man. In fact, dyspepsia and the blue devils immediately left me. I am conscious that the occupation is an honest one; I know it is a healthy and a pleasant one; and as it interferes with no man, it is a peaceful one; and all nature tells me it is one that God will bless and prosper.

L. F. Allen, Esq., of Buffalo, followed Mr. Sterling, and deeply interested the audience by his happy combination of theory and practice, his plain straight forward manner, his reflections and illustrations, evidently the result of experience, and the earnest manner in which he enforced the facts presented. We are gratified in being able to state that no wine or spirits was provided, and the event showed that they were not needed to enable farmers to talk or hear. This is an example which we hope will be followed on all similar occasions.

The beautiful cattle and horses on the ground were evidently the lions of the first day, and the continued throngs of spectators around the pens that contained the fine animals of Sherwood and Prentice, Corning and Bement, and the warm expressions of admiration they elicited from the observers, must have been gratifying to the spirited proprietors. There was also another point of attraction which drew crowds on this day: there were three yoke of fat cattle on the ground, two from Onondaga county and one from Ontario, which would of themselves have constituted no inferior exhibition, weighing as the six animals did, not far from eighteen thousand pounds. It is much questioned whether any part of the United States can show their superiors. They were in truth moutains of flesh. One of these fine premium cattle, the property of Mr. Rust of the Syracuse House, has

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since the Fair been slaughtered; and the proprietor, with characteristic liberality, transmitted one quarter of the superior beef to Albany, to be sold for the benefit of the State Agricultural Society. Live weight of the ox slaughtered, Sept. 25, 2,750 lbs.; weight after he was dressed, including hide and tallow, 2,169 lbs.; his quarters alone, weighed 1,784 lbs.

On the evening of the first day, the large Presbyterian Church was filled to overflowing, to listen to an address to the Society from President Nott of Union College. The address was what was to have been expected from the occasion, and from the man. The subject was a noble one, "The Dignity of Labor," and beautifully and forcibly was it illustrated and treated.

The hearty applause with which the address was received by the audience, spoke most eloquently their approval of the patriotic and dignified truths to which they had listened. But of the address, it is unnecessary to say more at present, as we hope before long to have the pleasure of laying it in extenso before our readers, as a committee, consisting of Messrs. H. Baldwin of Syracuse, M. Sterling of Watertown, and I. Smith of Albany, were appointed to request a copy for the press.*

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*It will be seen by the following correspondence that Dr. Nott declined furnishing a copy of his address for publication:

Rev. Eliphalet Nott, D. D.

Dear Sir—The undersigned were, by an unanimous vote of the State Agricultural Society, appointed a committee to wait upon and tender you the thanks of the Society for the very able and eloquent address delivered by you last evening before said Society, and to request a copy for publication.

This most agreeable duty we intended to have discharged in person, but were prevented by your early return home.

We have the honor to be, with great respect, your friends and obedient servants,

H. BALDWIN,
M. STERLING,
ISRAEL SMITH.

Syracuse, Sept. 30, 1841.

Gentlemen—I was absent when your favor came to hand, which must be my apology for not answering it sooner. The address in ques-

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On the 2nd day the trial of ploughs to test their draft, and the ploughing match under the direction of the Onondaga Society, came off, and as was to have been expected, excited much interest among the numerous farmers in attendance. The ground selected by the committee of arrangements, was on the farm of J. H. Johnson, Esq., on the great plain of the Onondaga valley, and near the southern boundary of the city corporation. The ground was hard and dry, falling to pieces when turned up by the ploughs, rendering it difficult to make a clean furrow, or show the precise manner of the working of the implements. The effort among the plowmen, to the spectators, seemed to be to do the work well, rather than quickly, and considering the nature of the ground ploughed, the work in general was done in a way that proved the skill of the ploughman as well in the goodness of the implements used. That frequent defect in ploughs, and in ploughing, was, however, in some instances observed here: instead of the bottom of the furrow being left flat, owing either to a defect in the implements or holding, the land side of the furrow was cut much deeper than the other, thus giving an uneven or notched appearance to a cross section of the furrows, and failing to stir the ground equally to the same apparent depth. Most unfortunately for the competitors in the plowing match, or the comfort of the crowd of spectators, a cold drizzling rain was falling, which materially interfered with the performances. For the result of, and trial of draft, we must refer to the report.

A new plow, presented by Messrs. Ruggles, Nourse & Co., of Worcester, (Mass.) to the senior editor of the Cultivator, was on the ground at the plowing match, and though not offered for the premiums,

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tion was not prepared for the occasion; and indeed, to a considerable extent, was not prepared at all. If it were worthy of publishing, it would be difficult to furnish a copy of it, and quite impossible at present, as I am unavoidably otherwise occupied.

Thankful that what was said has in any degree met your approbation; regretting that it was not more worthy of that approbation, and wishing you every success in the noble enterprise in which you are engaged,

I am, gentlemen, very respectfully yours,

E. NOTT.

Union College, Schenectady, Oct. 10, 1841.

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it excited much notice from the excellence of its materials, manufacture and just construction, as well as for the perfection and ease of its work.

The show of agricultural implements was most satisfactory. The number of thrashing machines, horse powers, straw cutters, fanning mills, ploughs, harrows, cultivators, barrows, drills, cradles, scythes, pitchforks, horse rakes, &c. &c. was very great, and exhibited much mechanical ingenuity and skill. These, with the farm products, horticultural articles, and domestic manufactures, formed a collection of much interest and variety. Such was the dense mass of spectators which filled every room and avenue of the court house, that it was with no little difficulty the committees obtained access during the hours of exhibition; and it was evident that a proper arrangement of all the articles would require a far more spacious building.

At 2 o'clock the railroad depot, in its large extent, was filled to hear the premiums announced, and so many of the reports of the several committees as were prepared. The decisions in general appeared to give satisfaction, although in some instances, as usual in such cases, many of the spectators may have differed from the judges, and the numerous premiums awarded were paid to the successful competitors in gold or plate, at their option, it being generally understood that the Benton mint drops are considered unobjectionable "*per se*," and never injurious to the farmer.

About nine hundred persons sat down to dinner at the Syracuse House on the second day; and, as on the first day, the feast was enlivened by several excellent speeches from gentlemen present. Among these were Mayor Van Vechten, of Albany; Mr. Garbutt, of Monroe; Mr. Patterson, ex-Speaker of the Assembly; Mr. Baldwin, of Syracuse; Mr. Sanford, President of the Onondaga Agricultural Society, and several other gentlemen.

We are happy to be able to give the remarks of Mr. Baldwin on this occasion, and regret similar reports from the other speakers have not been furnished.

The President of the Society, Joel B. Nott, Esq., having, in a very complimentary manner, alluded to the action of the committee of arrangements, and the manner in which the society had been received by the citizens of Syracuse, H. Baldwin, Esq., one of the committee of arrangements, rose and remarked:

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I could wish, Mr. President, that the pleasurable duty of returning thanks to the Board of the New-York State Agricultural Society had fallen into abler hands. It is, sir, no unmeaning compliment when I assure you, in behalf of the citizens of Syracuse and the inhabitants of the county of Onondaga, that we are indeed greatly obliged to you for establishing your first Agricultural Fair, under the late law appropriating the funds of the State in aid of our cause, in this village; and we are the more happy if we have in any way succeeded in our arrangements, in giving satisfaction to the board. If in anything we have come short of our duty, it has been owing to inexperience and want of judgment, and not from any want of disposition on our part to please. We hope, sir, these visits may be annually repeated, and aided by the light, which the experience of this year affords, we will endeavor to make our arrangements more perfect in future; at all events, we will at all times give you a most hearty welcome. From the allusion, sir, which you were pleased to make to our own county agricultural society, it may be expected that I should say something on that subject.

It is but a short time, sir, since the organization of our present society—this is our third fair. It may not be uninstructive to dwell for a moment upon some of the difficulties we had to encounter in getting our society under way.

It is now about six years since, when a few friends united in a public call of an agricultural convention. To our great mortification, when the time arrived, not more than eight or ten were found in attendance; but, sir, those eight or ten individuals were true men. We had enlisted in the cause and determined not to be discouraged or driven from our purpose, but to "go ahead."

We adopted an address and passed a set of resolutions which had been previously prepared, and gave to our convention, upon paper at least, all the appearance of a pretty formidable one. We resolved, among other things, to memorialize the Legislature then in session, and procure an act of incorporation. This was done; the act was passed; but owing to causes not necessary to detail, two years were allowed to pass away before we organized. But, sir, we did organize, established a fair for that very year, which was well attended, and from that day to this, have been in the full tide of successful experiment.

I have dwelt thus long on this early history of our affairs, in order to show our friends that, however discouraging matters may appear in the

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beginning, they should not be discouraged or give back, but press on, and success will ultimately crown their efforts. And in order to show too, how important results flow from small beginnings, if I am not altogether misinformed, this very exhibition is owing in part to those causes, trifling as they are. At the period to which I have referred, the New-York State Agricultural Society, was itself struggling for existence—but a few devoted friends were then at work and alone sustaining that institution. Almost ready to despair, and looking abroad through the dim distance to catch a view of their future prospect, they beheld with joy our beacon light, small and feeble as it was; it inspired them with new hope; they saw that here at least, were a few congenial spirits, laboring in the same cause with them, and they resolved that they would go up and worship at the same shrine together. Oh, sir, it is a glorious cause—next to disseminating the principles of our holy religion, there is perhaps no way in which man can benefit his fellow man so much, and effectually as in this. And here, sir, you will pardon me for a moment, if I briefly advert to a very few of those distinguished individuals who have passed from among us, but who when living, gave it the aid of their talents, character and influence.

At the head of this list, in our own State, stands the name of the much and universally lamented De Witt Clinton. Always the patron of science and the arts, while Governor of the State, he at an early period invited the attention of the Legislature to the subject, and by his recommendation our first societies were established. His hand first put the ball in motion, and although at times partially arrested in its course, it is still rolling on from the momentum which he gave it, accelerated, it is true, by those who have succeeded him. In his successful endeavors to develop the resources of the State, he not only increased its produce, but opened a highway to market. His name and memory will ever be gratefully cherished by the farmers of New-York.

Next in order of time, but perhaps not in influence, stands the name of the late Jesse Buel. He established the Cultivator and an experimental farm: by his writings in the one and his labors on the other, he has given an impulse to agriculture which is now, and will continue to be, felt by generations yet unborn; he was indeed a public benefactor.

Many other illustrious names might be added to the list, but I forbear—time will not permit. Let us not, however, while we thus bear

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our grateful testimony to the dead, be altogether unmindful of the living. There is one at least who has honored us by his presence and services on this occasion, whom, you will all agree, we should not pass over in silence.

If it be true, sir, as we have this day heard, that that individual who causes two blades of grass to grow where only one grew before, is entitled to the appellation and rank of a public benefactor, what praise is due, and what shall be said of him whose whole life has been spent in multiplying, not matter but mind, in implanting new ideas, in inculcating and instilling moral, virtuous and religious principles, in unfolding the mental faculties, in leading with parental care, thousands of the youth of our country (some of whom now grace the highest stations in our land,) through all the mazes and labyrinths of the abstruser sciences and the higher departments of literature and the arts, and who, (in his sphere,) like the sun of heaven, sheds his rays and benign influence upon all surrounding objects, dispelling the gloom, warming the heart, quickening the pulse and enlightening the understanding. Such an individual, sir, though now absent, has honored us by his presence on this occasion; and great and glorious as it is, such is his elevation of character, that he has rather honored it, than been honored by it. An individual, sir, whose name will be remembered and revered as long as Christianity has a disciple, morality and virtue an advocate, genius an admirer, or science and the arts a votary. I need not tell you that I allude to the Rev. Doctor Nott, the orator of the day.

There is another distinguished individual whose absence on this occasion we all regret, but whose name being closely associated with the object of our pursuit, I beg leave to mention. An individual who for nearly twenty-five years, presided with signal ability in one of the highest tribunals in our State; and, from the high character of whose judicial decisions, is favorably known, not only to the State, but to the civilized world.

In the full enjoyment of all his faculties, he has, since retiring from the bench, which he so much adorned, occupied his time to some extent in that primitive, rational and delightful employment, agriculture; enlightening and adorning this, as he has every other pursuit of his long and useful life. In this hasty sketch, brief and imperfect as it is, you will all recognize Chief Justice SPENCER, and will all unite with

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me in the sincere aspiration, that the sunset of his days may be as calm and serene as his eventful life has been long and useful.

There is yet another individual who, though absent, has manifested his attachment to our cause by sending hither his two sons, and constituting them, by the payment of the required sum, members for life. An individual, sir, who, when the entire western portion of our State was a dense and unbroken forest, plunged deep into its bosom and located himself upon a large tract of its best soil, since which time he has remained its successful occupant. He is emphatically one of the pioneers of the west. His ample domain, embracing more than 30,000 acres, is in a high state of cultivation, his granaries groaning under their burthen, his fertile vales and meadows, his beautiful lawns and woodlands, his rich pasturage, and his flocks upon a thousand hills, are the rich reward of nearly half a century of perseveri ng,successful agricultural toil. Distinguished alike by his equanimity of temperament, blandness of manner, and benevolent disposition, he has long since received the well merited appellation of "The Gentleman Farmer," "The Princely Agriculturist." I need scarcely tell you, that I refer to Mr. WADSWORTH of Geneseo. These are the men, and these the living examples we want to elevate and aid our cause.

I have thus, sir, briefly referred to some dislinguished names among both the dead and living, to show who are and have been our co-workers, and what individual effort will accomplish.

But, sir, there is yet another cause still more powerful, to which I beg leave for a moment to refer. I mean the press—the public press, that mighty Archimedian lever of power—that matchless engine which stirs and lifts up the whole body politic at on poise, that speaks with a thousand tongues to a whole nation at once, and that, in fact, does the work. All other causes and aids are merely auxiliary to this. Cast your mind back, sir, to the period when the Cultivator and Genesee Farmer were first established; how low in our State, how drooping, how benighted, nay, how degraded was the science and the pursuit of agriculture; how depressed in the scale of human employment, and how little understood was scientific husbandry; and yet by the continued droppings of those two fountains, the adamant of public prejudice has been worn away, the rock of ignorance has been perforated, the rays of science and the light of experience has broken through, and the New-York farmer stands now revealed in his true character; it is now

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discovered that the pursuit of agriculture is no mean employment. For all this we are indebted to the press, and mainly to those two organs.

In conclusion, I beg leave, therefore, to give as a sentiment,

The press—the public press, and especially the agricultural periodicals of our own State. Distinguished by unusual talent, industry and zeal, they are powerful levers acting upon public sentiment, uprooting ancient prejudices, enlightening the public mind, elevating and ennobling agricultural pursuits; may they receive a generous support by every member of this Society, and every friend of the cause.

On the third day, the Executive Committee, by invitation, examined various articles accidentally overlooked by the committees, owing to their being improperly placed. Among these were beautiful specimens of salt presented by H. SMITH, of Salina, a most superior article, and manufactured in such a way as to remove every objection against the strength and purity of the Onondaga salt; also specimens of table knives and forks, a fine article of American manufacture, made by Messrs. G. & D. N. Ropes, and presented by MARSH and WHEATON, of Syracuse. They also had the pleasure of examining specimens of mulberry, presented by THOMAS MELLEN, Esq. of Madison, the *Morus Oregona*, or Oregon mulberry, discovered in the territory of that name west of the Rocky mountains. The leaves of this mulberry are larger, thicker and more fleshy than those of the multicaulis; while it it is said by Mr. Mellen, to be hardier than any other variety of the mulberry, enduring the winters of this region without injury. Mr. Mellen, from his experience, contends that the cocoons fed on this variety of the mulberry are superior both in weight and quality, to those fed on any other with which he is acquainted.

On the third day, the board of arrangements and various other gentlemen visited the farm of Fletcher Woodward, Esq. which received the first premium of the Onondaga County Agricultural Society, offered for the best farm. Mr. Woodward's farm lies on the strata which crosses the county from east to west, immediately below the upper limestone masses, and like that of the greater part of those similarly situated, is of great fertility, and easily cultivated. The visitors were much pleased with the neatness, order, and high culture shown on Mr. Woodward's farm, and we doubt not, from the statement made of the

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crops harvested, that he finds in the good management of his farm a profit as well as pleasure. The board also made a brief call at the farm of George Geddes, Esq. a short distance west of Syracuse, well known as a practical farmer of much merit. Here they examined some hydraulic machinery of a new and simple construction, invented by Mr. Geddes, used for watering his extensive farm, and which is also made applicable for the several other useful purposes. They were much pleased with specimens of gates and farming implements invented and constructed by Mr. Geddes, as well as with the general appearance of his extensive farm.

J. G. King, Esq. of New-York, forwarded for exhibition, and presented to the State Agricultural Society, some fine specimens of the Neapolitan hog. Under the direction of a committee of the board, these animals were distributed among the following gentlemen: H. S. Randall of Cortland; Harvey Baldwin and George Geddes of Onondaga; Ezra Cornell of Ithaca; and Dr. Button and Samuel Hecox of Wayne county. The gentlemen receiving them, are expected to make a full trial of their merits, and report to the society at a future time. They much resemble the Berkshires, with round bodies, and thick hams, but are finer in the head and ears. They are nearly destitute of hair, (which is their most marked peculiarity,) are black, and said by Mr. King to fatten with unrivalled facility, and to make pork fine and of superior quality. They much resemble the original Siamese, which crossed with the original Berkshire hog, has produced the beautiful improved Berkshire of the present day.

In the departments of implements, products, horses, cattle, and swine, the exhibition was such as to satisfy all reasonable anticipations, and do honor to the State; but in that of sheep the paucity was so great as to constitute the most material and marked defect of the Fair. It must be considered singular that in a county containing some 15,000 sheep, many of the flocks of pure Saxon or Merino, and grade sheep of all varieties, and in a state with more than four millions of this valuable animal, so very few should have been offered for exhibition; but we have the consolation of knowing that this disappointment is one which will not recur again, and that hereafter this important part of our domestic animals, and to which so much of our prosperity is owing, will be fully represented.

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Award of Premiums.

CATTLE—CLASS I. BULLS—3 *years old and over.*

To J. M. Sherwood, Auburn, for his bull "Archer," bred by F. Rotch, Butternuts, 1st prize.

To E. P. Prentice, Albany, for his bull "Nero," bred by himself, 2d prize.

To C. N. Bement, Albany, for his bull "Astoria," bred by himself, 3d prize.

To Silas Gaylord, Skaneateles, for his bull "Splendid," 4th prize.

"There were several other animals (in this class) on the ground, possessing in the estimation of your committee, high grades of excellence, and they only regret that the premiums were not more numerous. Among these, your committee particularly noticed the animals of Mr. McIntyre, Mr. Van Bergen, Mr. Fonda and Mr. Sears."—[*Report of the Committee.*

CLASS II. BULLS—2 *years old.*

To John Johnston, Fayette, Seneca co., for his bull "Royal William," bred by G. V. Sacket, Seneca Falls, 1st prize.

To Thomas A. Clark, Chittenango, for his bull "Young Warden," bred by Thomas Hollis, Gilbertsville, 2d prize.

To D. D. Campbell, Schenectady, for his bull "Rotterdam," bred by himself, 3d prize.

To Nicholas Garner, Burlington, for his bull "——," bred by himself 4th prize.

CLASS III. BULLS—1 *year old.*

To Moses Kinney, Cortlandville, for his bull "Daniel Webster," bred by G. V. Sacket, Seneca Falls, 1st prize.

To Enoch Marks, Navarino, for his bull "Brutus," 2d prize.

To Benjamin Stoker, Cortland co. for his bull "——," 3d prize.

To Joseph Baker, Onondaga co. for his bull "——," 4th prize.

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Your committee beg leave to express their regret, that though the exhibition in classes II. and III. were very numerous, yet but few of the animals were in what they considered, *common store order;* which rendered the effort of comparison with such as were high fed very difficult.—[*Report of Com.*]

Class IV. COWS.

To John M. Sherwood, Auburn, for his cow "Stella," bred by F. Rotch, 5 years old, 1st prize.

To Ezra P. Prentice, Albany, for his cow "Daisy," 3 years old, bred by himself, 2d prize.

To John M. Sherwood, Auburn, for his cow "Daisy," 12 years old, 3d prize.

To John M. Sherwood, Auburn, for his cow "Pansey," 5 years old, bred by F. Rotch, 4th prize.

To Corning & Sotham, Albany, for their Hereford cow "Matchless," imported, an extra prize, equal to the highest premium awarded on cattle.

Your committee further report, that a new and beautiful race of cattle were presented for their examination, the Herefords, imported by a distinguished breeder of cattle, residing in Albany county, which they take pleasure in recommending to the attention of those who desire to improve their stock. Your committee recommend a special premium of twenty dollars for the Hereford cow "Matchless," as we consider her a very superior animal: and they would also suggest the propriety of offering and awarding premiums for the best blooded animals of each individual breed, improved Short Horned Durhams, Herefords, and Devons, at their next annual agricultural meeting, in addition to premiums offered for the best animals of any breed.—[*Report of Com.*]

Class V.—TWO YEARS OLD HEIFERS.

To John M. Sherwood, Auburn, for his heifer "Sylvia," bred by F. Rotch, 1st prize.

To E. P. Prentice, Albany, for his heifer "Diana," bred by himself, 2d prize.

To Corning & Sotham, Albany, for their Short Horn and Hereford heifer "Eliza," imported, 3d prize.

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CLASS VI.—YEARLING HEIFERS.

To Ezra P. Prentice, Albany, for his yearling calf "Charlotte," bred by himself, 1st prize.

To John M. Sherwood, Auburn, for his yearling calf "Norma," bred by H. S. Randall, Cortlandville, 3d prize.

To John M. Sherwood, Auburn, for his yearling heifer "Dianthe," bred by J. Alexander, Burlington, 3d prize.

To William Fuller, Skaneateles, for his heifer calf "——," bred by himself, 4th prize.

All the animals, on which the above prizes were awarded, with the exception of the Hereford cow and the Short Horn and Hereford heifer of Messrs. Corning & Sotham, were thorough bred improved Short Horns.

CLASS VII.—GRADE HEIFERS.

To William Ward, Camillus, for his 8 years old half blood Holderness cow, 1st prize.

To W. H. Sotham, Perch Lake Farm, for his half blood Durham cow, No. 1, 2d prize.

To W. H. Sotham, Perch Lake Farm, for his half blood Durham cow, No. 2, 3d prize.

To W. H. Sotham, Perch Lake Farm, for his half blood Devonshire cow, 4th prize.

The best grade cow which came under our observation, belonged to G. V. Sackett, of Seneca Falls, but he being one of the committee, generously withdrew her from competition.—[*Report of Com.*]

CLASS VIII.—GRADE HEIFERS.

To H. S. Randall, Cortlandville, for his roan heifer, bred by himself, 1st prize.

To G. V. Sackett, Seneca Falls, for his red and white heifer, bred by himself, 2d prize.

To G. V. Sackett, Seneca Falls, for his roan heifer, bred by himself, 3d prize.

To H. S. Randall, Cortlandville, for his red and white heifer, bred by himself, 4th prize.

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Class IX.—NATIVE COWS.

The committee on native cows would report that very few cows, and those of an inferior quality, were to be found in the pens; and they probably not intended for exhibition. They regret that the farmers in this vicinity should have refrained from taking advantage of the very liberal encouragement offered by this Society, by the false impression that cows were going to be brought from a distance which would have eclipsed the cows of this neighborhood. We are unwilling to believe that there are not cows in this village and vicinity that would have honored the exhibition, and been a credit to the State. They regret that a matter so important as the improvement of our native cows, does not excite more attention. Such cows must of necessity be the ground work of much of the improvement in cattle. If a farmer has a cow possessing some excellent qualities, he is prepared to improve in any desirable point. The general dissemination of high blood animals renders such crossings easy and cheap; and it is a matter yet at issue whether such crosses will not make the most desirable animal for the common farmer. We want the best native cows for such crosses; and the committee are of opinion that the Executive Committee of the State Society are holding out liberal encouragement for active competition in the matter of improving our native cattle. In conclusion, we would add, that we hope that no future committee will be under the necessity of reporting no competition; but let the farmer, the lawyer, the merchant and mechanic, bring forward their best cows, and render it a matter of nice discrimination to decide between them.—[*Report of Com.*]

Class X.—WORKING OXEN.

To Caleb Gaspar, Marcellus, 1st prize.

To Samuel Allen, Jr. New-Haven, 2d prize.

FAT CATTLE.

To P. N. Rust, Syracuse, for the best yoke of fat oxen, one of which was bred by G. V. Sackett, 1st prize.

BULL CALVES.

To Ezra P. Prentice, Albany, for his thorough bred improved Durham bull calf "Homer,"* six months old, bred by himself, 1st prize.

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* This calf was sold by Mr. Prentice, at the Fair, to Mr. Dunn, of Lyons, for $250, cash.

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To Samuel Phelps, Ira, for his grade Devonshire, 2d prize.

TO BREEDERS.

To Francis Rotch, Butternuts, as the breeder of the best bull, prize.

To the same, as the breeder of the best cow, prize.

To the same, as the breeder of the best two years old heifer, prize.

The premiums to the breeders having been offered by Mr. Rotch, he declined receiving more than a certificate of the award, leaving the money ($30) with the Society, to be offered in premiums for the same purpose next year.

HORSES—STALLIONS.

To Nathan A. Cooper, New-York city, for his bay horse "Messenger," got by Membrino, dam by imported Messenger, 1st prize.

To J. B. Thompson, Fayetteville, for his bay horse "Young Membrino," got by Mr. Thorn's Eclipse, dam by Membrino, 2d prize.

To P. & G. Warren, Manlius, for their grey horse "Messenger," got by Ehle Messenger, dam Queen Ann, 3d prize.

To Caleb Gasper, Marcellus, for his bay horse "Gasper,"—pedigree not known—4th prize.

MARES.

To Samuel Townsend, Canterbury, for his bay mare "Lady Syracusa," by "Onondaga," out of "Lady of the Lake," 1st prize.

To W. Colton, Lenox, for his grey mare, 2d prize.

To Wm. Cook, Lysander, for his bay mare, 3d prize.

"The committee on horses who have had the honor of being selected by the Society, having examined the different horses exhibited to them with much care and attention, make the following report; in doing which, your committee have endeavored, so far as their judgment would lead them, to take into consideration the interest and use of the farmer, as to the kind, form, size and blood of the horse from which the farmer should breed.

"1st. We consider the kind should consist of the horse, which, at market, would bring the largest price. An inferior horse can always be obtained for less money than it will require to raise him.

"2d. The form we consider should consist of sufficient height, length and breadth, well and strongly connected, placed on a set of limbs cal-

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culated to carry the same; the limbs to be composed of bone and sinew, and that alone, free from all flesh, gum, &c., and we would add, clean and as free from hair as possible.

"3d. The size of a horse, the experience of your committee has led them to believe should be sixteen hands, or as near that height as possible, considering that size the most saleable, which to the farmer and breeder is certainly very desirable.

"4th. The blood of a horse, although lastly named, is by no means (in the minds of your committee,) the least requisite, and we consider should consist of that which has proved itself of the greatest endurance; and in the judgment of your committee, no competition can be selected with that of England, from which, in our humble estimation, the finest blood has been obtained, by the energy and enterprise of many American gentlemen, at very costly prices; we would instance the blood of Old Messenger, which has proved itself in every quarter of the State to which it has been taken, and is well known to all farmers and breeders of horses."

Adopting these principles for their guidance, the committee adjudged the premiums as given above. The committee conclude their report as follows:

Your committee will here remark, that many other stallions were shown; the want of limb in some, movement in others, and figure and size in most of them, prevented them from competition with those named. We would also remark, that the horse called Sampson, (imported,) although a horse having great size, still in our judgment, wants the requisite qualifications for a farmer to breed from; and also the Canadian grey horse we can not approve of, for the reasons given, believing that we, as a committee, were to be governed in our judgment and decision by the simple fact of deciding from which horse we, as farmers and breeders of horses, would breed. We would, however, say that the gentlemen who have imported those horses, and have been to the trouble of exhibiting them, deserve the thanks of the Society. We also have the pleasure to state that your committee were unanimous in making the above report. We regret that the exhibition of mares and colts generally, were rather of an inferior order, and not such as farmers should breed from.—[*Report of Com.*]

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SHEEP.

Class I. LONG WOOLED.

To Corning & Sotham, Albany, for their imported Cotswold buck, No. 1, 1st prize.

To Corning & Sotham, Albany, for their imported Cotswold buck, No. 2, 2d prize.

To Corning & Sotham, Albany, for their imported Cotswold buck, No. 3, 3d prize.

To Robert S. Musson, Gilbertsville, for his pen of three Leicester ewes, being the only ones in this class presented for exhibition, 2d prize.

The committee would make honorable mention of three ewes presented by Mr. Henry Clift, of Onondaga, which were a cross between the long wooled and the short wooled varieties ; but inasmuch as they did not come exactly under the class they were requested to examine, they could not award a premium to Mr. Clift, which under other circumstances they would have been very happy to have done.—[*Report of Com.*]

Class II. MIDDLE WOOLED.

To Francis Rotch, Butternuts, for his South Down buck, 1st prize.

To Uri Jackson, Jr., Butternuts, for his South Down buck, 2d prize.

To John Snook, of Skaneateles, for his South Down buck, 3d prize.

To Francis Rotch, Butternuts, for his pen of three South Down ewes, 1st prize.

There being no others presented, the other premiums were not awarded.

Class III. FINE WOOLED.

To Daniel Marsh, Pompey, for his buck, 2d prize.

To Chester Moses, Marcellus, for his pen of ewes, 2d prize.

The committee have first to express ther great disappointment, on account of the very few sheep exhibited for premiums on this highly important occasion; and second, the indifferent character of those which came under their examination.

In reference to the first remark, it is unnecessary to say, that the disappointment, and we may justly add, chagrin, now no less entertained by the immense body of spectators than by the committee; and it is confidently hoped and expected, that on no future occasion of this

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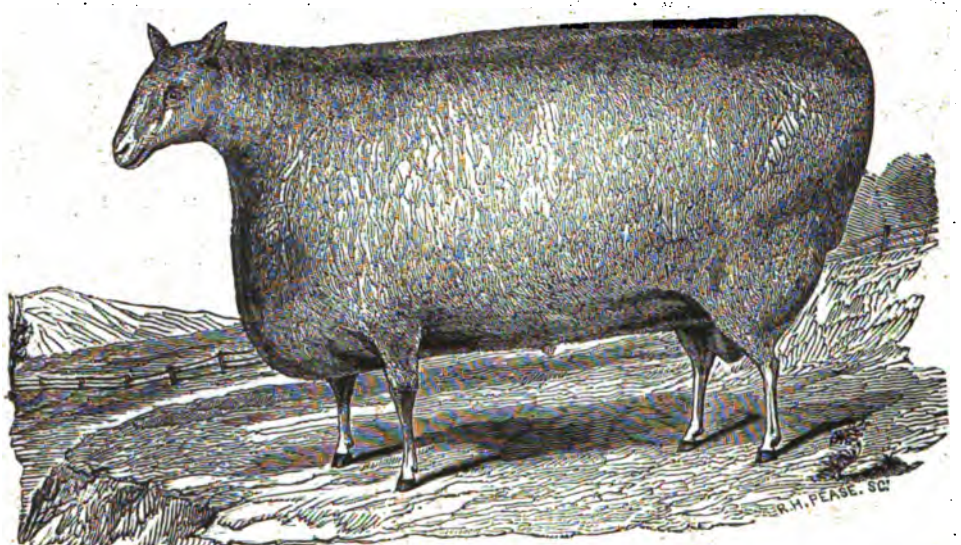

COTSWOLD RAM,

Imported by Messrs. CORNING & SOTHAM, Albany,

To which was awarded the First Prize of $20, for the best long-wooled RAM, at the Fair of the N. Y. S. Agricultural Society, at Syracuse, Sept. 1841.

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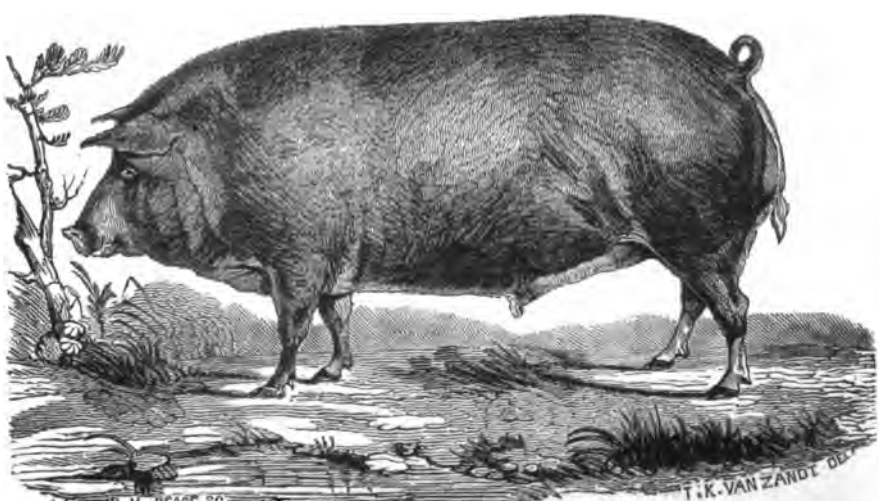

RIP VAN WINKLE—TWO YEARS OLD,

The property of C. N. Bement, Three-Hills Farm, near Albany,

For which the N. Y. S. A. Society's first Premium of $10 was awarded, as the best Boar exhibited at Syracuse, Sept. 1841.

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kind will like disappointment again occur. The State of New-York has within its borders no less than five millions of sheep, and how astounding will it appear abroad, when the fact is made known, that but barely *seven* sheep were exhibited of the class coming under the cognizance of the committee !—when it is a truth, and well known, that no State in the Union can produce so great a proportion of sheep producing fine wool, compared with the whole number within its bounds. The causes of this meagre display, however, are several, and very obvious; and first, the expense of transportation, but more particularly timidity, grounded on the expectation of great competition, and consequently an apprehension of failure to obtain an award. This should not be so, for if many are disappointed, let it be noted and remembered than on all future occasions of this kind, animals characterised by general excellence will meet with a ready sale, and at prices much exceeding those in the immediate neighborhood where they belong. This remark is confirmed by the large number of wool growers who have come here at this time, and many from a distance, to make purchases of the class of sheep under consideration.—[*Report of Com.*]

SWINE.

To C. N. Bement, for his Berkshire boar, Rip Van Winkle, 1st prize.

To Jesse Campbell, Sullivan, for his Berkshire boar, 2d prize.

To P. N. Rust, Syracuse, for his Leicester boar, 3d prize.

To Samuel Hecox, Lyons, for his Leicester boar, 4th prize.

To C. N. Bement, Albany, for his Berkshire sow, 1st prize.

To Anthony Van Bergen, Coxsackie, for his Berkshire sow, 2d prize.

To William McKnight, Syracuse, for his Berkshire sow, 3d prize.

To L. G. Collins, Butternuts, for his Berkshire sow, 4th prize.

ON PLOUGHS.

To Howard Delano, Mottsville, 1st prize.

To E. G. Holladay, Dansville, for the Laughlin plough, second prize.

To Elijah Wilson, Vernon, for the Livingston County plough, No. 4, 3d prize.

To Chester Dexter, Utica, for the Wisconsin plough, 4th prize.

To Mooers & Slater, Ithaca, for their double mould-board side-hill plough, an extra prize, equal to the first premium.

To Stevens Cook, for an improvement in the Onondaga plough, an extra prize of $5.

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The committee appointed by the Executive Board to examine and test the valuable properties and improvements in the plough, beg leave to report, that they have had a most arduous duty to perform. Near 20 of them were presented for our inspection, and the committee are free to say, that they never have seen so great a number of remarkably excellent ploughs together before, and have to regret that they are circumscribed in their award of premiums, when they are confident so many are entitled to the favor of the Society.

After as careful an examination of the subject as we have been able to give, and a trial of ploughs by the dynamometer, we have awarded the first premium of $30 to Howard Delano, for a very beautiful and highly finished plough, with a new form of a cutter, in place of the common coulter, which we consider an improvement well worthy of a fair trial among the farmers of the country.

The second premium of $20 ,the committee have awarded to E. G. Holladay, for his plough, already favorably known as the Laughlin plough, and which the committee found to work by trial with the dynamometer with great ease of draft and steadiness.

The third premium of $10, the committee award to Elijah Wilson, for a very fine well made and well proportioned plough, called the Livingston County plough, No. 4.

The fourth premium, a diploma of the Society, the committee award to Chester Dexter of Utica, for his Wisconsan plough.

The committee have also determined to award an honorary premium equal to the first premium on ploughs, $30, to Moore & Slater, for a newly invented double mould-board sidehill plough, which the committee believe will prove a very valuable acquisition to the farmer for many other purposes besides side hill ploughing, it having performed admirably handsome work upon a level surface.

The committee also award a premium of $5, to Stevens Cook, for an improvement made by him in the mode of fastening the land side of the Onondaga Plough, including a very good model.

The committe cannot close without saying that owing to the unpleasantness of the day, and the want of time, they were unable to devote that attention to this important subject, that this most important of

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all agricultural implements require, and we most earnestly recommend to the Society to devote more attention to this matter anothe ryear, and we hope that the competitors who have been unsuccessful this year will not be discouraged, but will continue to press forward in this grand work, recollecting that the committee distinctly say that the whole collection of plows exhibited were such as do great credit to American manufacturers of agricultural implements.—[*Report of Committe.*]

CULTIVATORS AND DRILLS.

To C. N. Bement, Albany, for the best Cultivator, 1st prize.

To Anthony Van Bergen, Coxsackie, 2d prize.

To Calvin Olds, of Vermont, for a Drill Barrow, 2d prize.

THRASHING MACHINES.

To A. Douglass, Skaneateles, for Thrashing Machine, 1st prize.

To Henry Olds, Syracuse, 2d prize.

To D. G. Stafford, Syracuse, 3d prize.

HORSE POWERS.

To Norman Ackley, Rochester, Dibble's Horse Power, 1st prize.

To David G. Stafford, Syracuse, 2d prize.

To Archibald Douglass, Skaneateles, 3d prize.

STRAW CUTTERS.

To Jonathan S. Wilcox, Auburn, for Gilson's Machine, 1st prize.

To J. S. Wright, Jordan, 2d prize.

To W. B. Abbott, Syracuse, 3d prize.

HORSE RAKES.

But one was exhibted, and as there was no competition, the 2d prize only was awarded to A. Holbrook, Whitesboro'.

SOWING MACHINE.

To Julius Hatch, Rochester, for a machine for sowing seeds and plaster, a prize of $10.

PITCHFORKS.

To Lewis Sandford, East Solon, a premium of $5, for half a dozen, of superior manufacture for strength and finish.

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FANNING MILLS.

To Orrin Heffron, Dryden, 1st prize.

To James Beebee, Sullivan, 2d prize.

To John Gilbert, Lyons, 3d prize.

AGRICULTURIST'S FURNACE.

To Jordan L. Mott, New-York, for his Agriculturist's Furnace and Cauldron, a silver cup.

SMUT MACHINE.

To Jireh Durkee, Utica, for "Grimes' Patent Smut Machine," a premium of $20.

The committee report, that they have examined with great satisfaction "Grimes' Patent Smut Machine," presented by Mr. J. Durkee, of Utica; and in all its parts they have found it simple and permanent in its construction, and in a manner to preclude the possibility of heat. They have also viewed one of the machines in operation, and its performance upon a very smutty quality of wheat, so much so as to be unsaleable in any market, which with a single operation of this machine, was rendered pure and clean.

The committee, with much pleasure, observe that in their opinion, this machine surpasses all others which have come within their knowledge, in many years' experience in the milling business; and they deem the introduction of it of great importance to millers and wheat growers, and most cheerfully award a premium of twenty dollars to Mr. Durkee, in accordance with the resolution of the State Agricultural Society to award premiums in cases of no competition when the implement is highly meritoirous.—[*Report of the Com.*]

ROOT CUTTER.

To Wm. Thorburn, Albany, for Fowk's machine, a prize of $2.

SILK, &c.

T Mrs. D. Carter, of East Bloomfield, for samples of 100 skeins of sewing silk of 74 different shades, samples of fringe and silk prepared for weaving, 1 pair silk hose, 2 pair mitts, 1 purse, 1 piece of cloth from silk floss, a premium of $20.

To Mrs. Melora Shove, Onondaga, for 100 skeins of sewing silk, a premium of $10.

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To Mrs. Harvey Baldwin, Syracuse, for specimens of needle-work, a prize.

The committee on silk culture have examined samples submitted for inspection by the following persons :

Thomas Mellen, of the town and county of Madison :

1st. Four skeins of reeled silk, of different numbers of filaments to each thread, and fed on different varieties of mulberry.

2d. Several varieties of cocoons, fed on different varieties of the Morus Multicaulis, and made by different kinds of worms, as the Peanut, Sulphur, Orange, and Two Crop.

3d. A fine, but small, sample of sewing silk.

4th. He showed a sample of the trees and leaves of a variety of mulberry which he calls Morus Oregona, which he represents as possessing excellencies not to be found in any other ; his cocoons were very fine, and his samples of silk showed an elegant lustre ; his trees were very small, but their leaves large, and taken altogether were meritorious. However much the committee may have been pleased with Mr. Mellen's samples, they would have been more gratified had they been larger.

By Mr. Robins, of Brighton, Monroe county :

A small sample of sewing silk, manufactured very handsomely, dyed and put up with taste and success, worthy of encouragement to all new beginners.

By Mrs. Melora Shove, of the town and county of Onondaga :

A large sample of sewing silk, successfully manufactured, and that upon the common spinning-wheel and reel, handsomely skeined, after having been beautifully colored, and all this without instruction, evincing much perseverance, and crowned with corresponding success.

By Mr. Leonard, of Carthage, Jefferson county :

1st. A sample of beautiful floss from the pierced cocoons, together with samples of valuable knitting yarn manufactured therefrom, a valuable article.

2. An elegant sample of reeled silk with a large sample of sewing silk, all handsomely manufactured in his own family, and upon the or-

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dinary spinning-wheel and reel; the sewing of beautiful and various colors, a very successful experiment.

3d. Samples of sulphur and orange cocoons, fed on multicaulis, and were a fine size and firm. Mr. Leonard also exhibited a model of a feeding frame, combining much that is useful with some that is new. The ingenuity, perseverance and success of Mr. Leonard, commends him to to the approbatory notice of the Society, and a worthy example to all who may feel disposed to enter upon the silk culture.

By Thomas Goodsell, of Utica, Oneida county:

1st. A specimen of outside floss, perfectly neat and clean, but not boiled out, in fine order for manufacturing.

2d. A sample of floss from pierced cocoons boiled, free from gum, and drawn out in roping form and wound in balls without twist, and about the size of oranges, which he is instructed is the form and condition for the article to be marketed.

3d. Very fine specimens of cocoons in point of size and firmness, from the orange, sulphur and peanut varieties.

4th. A sample of reeled silk, a worthy article for lustre, evenness and strength, wrought on the Piedmontese and Dennis silk reels.

5th. A multicaulis tree of the present year's growth, (and not far from the average growth of his lot,) nearly nine feet high, with leaves accompanying it, (although plucked from it,) measuring thirteen by fourteen inches.

6th. One bent of his cabinet feeding and winding frame, full size.

This frame, in the opinion of the committee, possesses advantages which should recommend it to the attention and consideration of silk growers. It is a neat and compact structure, occupying little room, requiring less labor in tending, and rendering greater facilities for winding, than most articles of this kind in use.

By Mrs. Darius Carter, of East Bloomfield, Ontario county:

1st. A sample of fair cocoons of the Peanut variety.

2d. A large sample of sewing silk, pretty well manufactured, and very successfully dyed, exhibiting (as she informed us) seventy different shades of color.

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3d. A very handsome piece or specimen of black fringe.

4th. One pair of ladies stockings, black, and a pair of mitts.

5th. One elegant reticule, 1 purse, 2 pair mitts, all of net work, manufactured from yarn prepared from floss.

6th. One piece of cloth, 1 apron, 2 handkerchiefs, together with yarn enough already colored to make 20 yards of cloth, all of which articles and yarn prepared from floss, the whole of which is the work of her own hands; she informed the committee that her cocoons measured one hundred bushels; the manufacturing all performed with household implements only. Enterprise, industry, and success like this should not pass the committee nor the Society, unheeded or unrewarded.

By the Agent of the State Prison, at Auburn:

A fine sample of sewing silk from convict's labor, which for uniformity and equality of filament, lustre of staple, brilliancy of colors and taste of putting up, would not discredit an Italian factory, and is to the State of New-York, an encouraging earnest of what we may expect with the advantage of a few years' experience.

The committee recommend that a premium of $20 be awarded to Mrs. Carter, and one of $10, to Mrs. Shove, for their specimens of silk, above enumerated.—[*Report of Com.*]

SAMPLES OF GRAIN.

To Rawson Harmon, Jr., Wheatland, for samples of 21 different varieties of wheat, exhibited in the berry, and in the head on the stalk, a premium of $10.

To M. B. Bateham, Rochester, for 12 varieties of imported wheat, a premium of $5.

To Seth Starr, of Sullivan, for the best specimen of Spring Wheat, $5.

To John Townsend, of Albany, and to Wm. Ingell of Volney, for two best specimens of Indian corn, $3 each.

ROOTS.

The committee on roots, notice with commendation, samples of Potatoes from J. F. Osborn, Port Byron; Wm. P. Buel, Albany, and Wm. Ingells, Volney.

Samples of White Carrots, from C. N. Bement, Three Hills Farm, and Wm. P. Buel, Albany—Yellow do. from John Bainbridge.

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Samples of Mangel Wurtzel, from J. F. Osborn, and Red Beets, from Rufus Cosset.

Also, a very fine sample of Onions, owner's name not known.

FRUITS AND FLOWERS.

Premiums of Books on Horticulture were awarded,

To David Thomas, Aurora, for a lot of about forty varieties of Apples, Pears, Peaches, Plums and Grapes, some of them of new and valuable varieties, presented by J. J. Thomas, nurseryman, of Macedon.

To Dr. Beaumont, Lyons, for several baskets of very fine and excellent grapes, including the Grey Tokay, Golden Chasselas, Scuppernong, Purple Royal Chasselas, Isabella, and Sweet Water, the quality of which, the Society had an opportunity of testing at the dinner table, "in committee of the whole."

To Samuel Hecox, Lyons, for a lot of sixteen varieties of foreign and domestic grapes, very fine and well ripened, of which Mr. H. raised above fifty bushels the present season.

To James Wilson, nurseryman, Albany, for a beautiful boquet, and a large lot of dahlias, of splendid varieties.

To Wm. P. Buel, Albany, for a miniature parterre of dahlias of very perfect and well chosen varieties of great beauty, and twenty-one kinds of well selected varieties of apples of fine growth.

To Ezra Cornell, Ithaca, for a basket of fine redcheek Malacaton peaches, some of them measuring more than seven inches in circumference.

To James Cochrane, Oswego, for a basket of foreign varieties of grapes, among which were the Chasselas, Sweet Water, Frontignac and Pinon Noire, a hardy variety, with a vinous and pleasant fruit, also a basket of Silver Clingstone peaches.

To Mr. Wiltse, of Oswego county, for a basket of fine apples, of known varieties.

To J. F. Osborn, Port Byron, for twenty-nine varieties of cultivated apples, of well selected sorts, together with three varieties of pears.

To Mr. Cossett, Onondaga, for a basket of fine grapes, including the Isabella, Alexander, Munier, Sweet Water, well ripened and large growth.

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Mr. Huntington, of Onondaga, presented a large basket of apples, of beautiful form and fine flavor.

M. B. Bateham, proprietor of the Rochester seed store, presented two seven year pumpkins, raised by H. N. Langworthy, of Irondequoit, in 1837 and 1840.

John Richards presented the vine and products of one seed of the citron watermelon, amounting to eighteen in number, and weighing over 300 lbs.

WINTER MEETING AT ALBANY.

According to previous arrangements, the annual meeting of the State Agricultural Society, for the distribution of premiums on farm crops, &c. and the election of officers, was held at Albany on the 18th and 19th of January, 1842. The attendance was very numerous and respectable, and although the number of competitors for the premiums offered was not great, the quality of the products presented, particularly of the butter and cheese, was excellent. Of butter, 20 lots from different parts of the State, amounting to over 2,000 lbs. were present. Of cheese, six lots, amounting to about 2,000 lbs. were exhibited.

The proceedings of the Society were conducted wtth the greatest harmony and good feeling; and in the review of what the Society had accomplished the past year, it was found there was abundant cause for gratulation. The manner in which the efforts of the Executive Committee had been seconded by the farmers in almost every section of the State, proved the interest felt in the association, their confidence in the beneficial results that would follow the organization and success of the Society, and their willingness, when properly appealed to, to sustain it by contribution to its funds. The best spirit was every where manifested; and all present seemed to feel that the year 1841 had opened a new and auspicious era in the history of New-York agriculture. It was felt that the principal difficulties in the way of the Society had been met and surmounted, and that the success which had attended its efforts was a most triumphant reply to the objections which a few had made to the utility of such associations.

The proceedings were closed by an agricultural supper at the City Hotel, served in the usual good taste of Mr. Foster, which was attended by a number of invited guests, among whom were the Governor of the State, several members of the Legislature, and others. Joel B.

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Nott, Esq., the late president of the Society, presided. In the course of the evening, Gov. Seward, Rev. Mr. Colman, Gen. Leland of the Assembly, Alderman Joy, Dr. Beekman of Columbia, Judge Van Bergen of Greene, Messrs. Walsh and Viele of Rensselaer, Johnson of Oneida, Caldwell of Orange, and Randall of Cortland, responded to the calls made upon them to address the company. The speeches of the Governor and Mr. Colman are spoken of as efforts of the happiest character. At one o'clock, the company separated, well pleased with their day's labor and evening's entertainment, and with a renewed determination to make the New-York State Agricultural Society worthy the character of the Empire State.

The following reports of the several committees will show the premiums awarded, and exhibit the statements of the individuals receiving them.

REPORT OF COMMITTEE ON BUTTER.

The committee to examine and award premiums on butter, beg leave to offer the following report:

There were twenty applicants for premiums, and the whole quantity of butter sent in for exhibition was about 2,600 lbs., the quality uniformly good, and generally put up with much neatness, highly creditable to the contributors.

The committee unanimously award the

1st premium, $30, to J. T. Lansing of Watervliet.
2d " 20, to William Merrifield of Guilderland.
3d " 10, to Charles Lyon of Ogdensburgh.

The annexed statements from the successful competitors, give their several modes of making butter.

ALEX. WALSH,
ROBERT DENNISTON,
GEORGE VAIL,
W. B. WALTON,
J. M. SHERWOOD.

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Mr. Lansing's Statement.

1. The number of cows kept is ten.

2. Keep them stabled through the inclement season; feed them from three to four times per day with good hay or green stalks; when near coming in, add some oats, barley, or corn cracked. In summer, good pasture, with living water accessible at all times, and plenty of salt.

3. Treatment of milk and cream before churning.—Strain the milk in tin pans; place them in a cool cellar for the cream to rise. When sufficiently risen, separate the cream from the milk; put it in stone jars, well prepared, before churning.

4. The mode of churning in summer.—Rinse the churn with cold water; then turn in the cream, and add to each jar of cream put in churn full one-fourth of the same quantity of cold water. The churn used is a patent one, moved by hand with a crank, having paddles attached, and so constructed as to warm the milk, if too cold, with hot water, without mixing them together. The milk and cream receive the same treatment in winter as in summer; and in churning, use hot instead of cold water, if necessary.

5. The method of freeing the butter from the milk, is to wash the butter with cold water till it shows no color of the milk, by the use of a ladle.

6. Salting of the butter.—Use the best kind of Liverpool sack salt; the quantity varies according to the state in which the butter is taken from the churn; if soft, more, if hard, less, always taking the taste for the surest guide. Add no saltpetre, nor other substances.

7. The best time for churning is the morning, in hot weather, and to keep the butter cool till put down.

8. The best mode of preserving butter in and through the summer and winter, is as follows: The vessel is a stone jar, clean and sweet. The mode of putting it down is to put in a churning of butter, and put on strong brine; let it remain on until the next churning is ready to put down, and so on till the jar is filled; then cover it over with fine salt, the same to remain on till used.

JACOB T. LANSING.

Watervliet, Jan., 1842.

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Mr. Merrifield's Statement.

Number of cows.—Eight.

Mode of keeping.—In pasture, in summer; on hay, straw and roots, in winter.

Treatment of cream and milk.—Milk strained into tin pans, and placed in the cellar.

Mode of churning.—The cream only churned, in a Dutch churn.

Method of freeing the butter from the milk.—By pressure.

Quantity and kind of salt.—Liverpool sack, one ounce to the pound.

Best time of churning.—Morning, in summer.

Best mode of keeping.—In the cellar, in summer, in wood.

In winter, our milk stands twelve hours; is then removed to the stove, and scalded over a slow fire to near boiling heat; the pans removed to the cellar to cool; the cream only churned. The butter, placed in the coldest part of the house, will keep good any length of time.

WILLIAM MERRIFIELD.

Guilderland, Jan., 1842.

Mr. Lyon's Statement.

TO THE COMMITTEE FOR THE EXAMINATION ON BUTTER.—In submitting to your consideration the following report I would remark, that at the time of my leaving home, I had no intention of entering the list of competitors, and that the tub of butter exhibited for your inspection was manufactured without any reference whatever to this exhibition; was made during my absence from home, in our ordinary way of making butter. My soil, part sand, heavy pine ridge, on which clover grows luxuriantly, and part black loam, and part clay, nearly equal in proportion, sloping westwardly. With the exception of five or six weeks in the season, water may be found plenty in my pastures; during the dry seasons, my cows have access to water morning and evening, and at midday, if they choose. My hours for milking are very regular, viz. commencing at early light in the morning, and in time to get through before dark in the evening. My dairy numbers twenty cows, seven of which were milked for the first time this season; their age

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three years old; the ages of the remainder average from five to ten years. I fattened all my calves to the age of six weeks. The latter part of winter and through the spring, my cows are fed about one peck of ruta bagas each; salted regularly once a week in winter, and twice in summer. I think salting regularly, as often as above stated, to be very essential, as conducive to good health; and during the milking season, tends to produce a uniformity in the quantity of milk, and in my estimation, adds, in no small degree, to the quality of the milk. The average product of my cows this season is 100 lbs. per cow, besides what I have used in a family of from eight to ten persons. My milk house is what is termed a plank building, clapboarded; ceiled about three feet from the floor; the remainder of the room lath and plastered. My shelves about six inches wide and five between, so constructed as to admit a free circulation of air. My buildings are on a rise of ground of sufficient height so as not to require drains to my cellars. I have a cellar under my milk house the entire size of my building, with wall of round stone, laid without mortar, to the depth of six feet. In the center of the building I have a place about three feet square, to admit the cool air from the cellar, over which I have a table, where the milk is strained, butter worked, &c., &c. The milk I required to be strained as soon as possible after milking, in tin pans, about three quarts to each pan; it stands until the milk is slightly turned, the time required depending on the temperature of the weather.

Churning performed every day, (Sundays excepted.) I would here remark, when cows are regularly salted, as I have before stated, I have never known an instance of any extreme difficulty in obtaining butter. After it is obtained, is immediately taken from the buttermilk, all the milk worked off that is practicable at the time, (which in some respect depends upon the temperature of the weather,) salted to the taste, and placed in a cool cellar until the next day, when the buttermilk is entirely worked out by the use of a ladle, and then packed solid in tubs.

The kind of salt I use is obtained in Albany, and goes by the name of sack sold, in parcels weighing from 200 to 300 lbs. After the tub is filled, the butter is kept covered with brine sufficient to keep the air entirely excluded, especially that made during the warm part of the season. My tubs are placed in the coolest part of my cellar. Butter made and protected in this way, I have no hesitation in saying, will keep sweet one, two, or three years.

CHARLES LYON.

Oswegatchie, St. Lawrence Co., Jan. 1842.

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REPORT ON CHEESE.

The committee on cheese have attended to the duties assigned them, and beg leave to offer the following report:

There were only five specimens of cheese presented for premium, that came within the rules of the Society. The cheese was generally of good quality, and alike creditable to the contributors and to the Society; but your committee regret to say the number of competitors was small, and a reflection on our dairy counties, which are so distinguished for the qualities of their cheese.

The specimen of D. Marvin was very good, and the committee had some hesitation in deciding the comparative excellence of this and that of H. & P. Allen of Duanesburgh, and finally decided in favor of the latter, as entitled to the Society's first premium of $20, upon the fact that this was rather the most mild and uniform in taste and flavor.

Your committee did not hesitate to award the second premium of $10, to D. Marvin of Cooperstown.

The other samples were very good, but were not of so even a quality, nor uniform in flavor; and as there was no entry for old cheese, that came within the rules of the Society, your committee would beg leave to recommend a gratuitous premium of $8 to Phineas Hard of Le Ray, for a sample which they considered very fine, and deserving particular notice.

In closing this report, your committee cannot help expressing their regret that in sections where they *know* so much good cheese is made, there should be so limited a number of competitors for the very liberal premiums offered by this Society. If the reward offered was the only motive for bringing forth these articles, the reason might be found in the little regard in the chastened minds of the community for that which many others have coveted; but when it is recollected that the great object of these exhibitions is to communicate and receive information on subjects of great interest to all, we cannot but think that the grand and high principles which actuate worthy citizens, should lead them, by the exhibition of their own successful manufactures, to instruct, stimulate, and encourage those less informed than themselves.

Your committee consider a *well managed dairy* one of the most valuable sources of a farmer's revenue. The product of a good cow, for

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a single season, in milk, butter, cheese, &c. may be safely estimated at more than thirty dollars.

We forbear to give particular directions for making cheese, referring you to the annexed statements of the competitors, whose success in obtaining the Society's premiums is the highest recommendation of the method pursued by them.

C. N. BEMENT,
E. R. SATTERLEE,
P. N. RUST,
B. P. JOHNSON.

Messrs. Allen's Statement.

Number of cows kept, eleven. Cheese made from two milkings, in the English manner; no addition made of cream. For a cheese of twenty pounds, a piece of rennet about two inches square is soaked about twelve hours in one pint of water. As rennets differ much in quality, enough should be used to coagulate the milk *sufficiently* in about forty minutes. No salt is put *into* the cheese, nor any on the outside during the first six or eight hours it is being pressed; but a thin coat of fine Liverpool salt is kept on the outside during the remainder of the time it remains in press. The cheeses are pressed forty-eight hours under a weight of seven or eight cwt. Nothing more is required but to turn the cheeses once a day on the shelves.

H. P. & G. ALLEN.

Duanesburgh, Jan. 17, 1842.

Mr. Marvin's Statement.

The milk strained in large tubs over night; the cream stirred in milk, and in morning strained in same tub; milk heated to natural heat; add color and rennet; curd broke fine and whey off, and broke fine in hoop with fast bottom, and put in strainer; pressed twelve hours; then taken from hoop, and salt rubbed on the surface; then put in hoop, without strainer, and pressed forty-eight hours; then put on tables, and salt rubbed on surface, and remain in salt six days, for cheese weighing thirty pounds. The hoops to have holes in the bottom; the crushings are saved, and set and churned, to grease the cheese. The above method is for making one cheese per day.

DANIEL MARVIN.

Cooperstown, January, 1842.

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Mr. Hardy's Statement.

The number of cows kept is thirty-eight. Cheese made from two milkings—no addition of cream. The quantity of salt used was one teacup full to twenty pounds of curd, of common Onondaga salt. The rennet was prepared by soaking one rennet in a jar of five or six quarts filled with salt and water. From one pint to one quart was used, according to the strength of the rennet, for a cheese of eighty or ninety pounds. The cheeses were pressed in a common wheel and lever press, and pressed two days. The cheeses were taken from the press, and rubbed with annatto, soaked in strong ley; then rubbed with whey butter, and turned and rubbed daily through the season with the same.

PHINEAS HARDY.

Le Ray, Jefferson county, Jan. 10, 1842.

REPORT ON WHEAT, RYE, AND BARLEY.

The committee on wheat, rye, and barley, beg leave to report:

That they exceedingly regret that they have been compelled to reject several applications for premiums, because the terms of the Executive Committee were not complied with. They regret it the more, because some of them would no doubt have received premiums—among whom were Elisha Pettibone, James Beatty, applicants for the premium on wheat, and Jay Pettibone for barley.

The first premium on wheat is awarded to George Schaffer, of Wheatland, Monroe county, provided he amends his statement by furnishing, on oath, an actual survey of the lot. The amount of wheat raised was 300 bushels on 7½ acres, averaging 40 bushels to the acre.

The first premium on barley, to John W. Turnnicliffe, Richfield, Otsego county, one acre yielding 53¼ bushels of barley. The whole expense of raising this acre of barley is estimated at $12.50.

The committee are desirous of expressing their thanks to the competitors for the above premiums. Their example is in the highest degree praiseworthy. They regret exceedingly that in so large a grain-growing State, so few men could be found who either deserved or were desirous of obtaining the premiums of the State Society.

ANTHONY VAN BERGEN.
W. FULLER,
OLCOTT C. CHAMBERLIN,
O. HUNGERFORD,
JOHN B. DILL.

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REPORT ON CORN, OATS, AND PEAS.

The committee appointed to examine and award premiums on corn, oats, and peas, beg leave to report:

That they entered upon the duties assigned to them, and have first to express their regret that the applications for premiums were not more numerous.

There were two applicants for premiums on corn, and your committee regret that the statements accompanying the applications were not more explicit, complying more strictly with the rules of the Society, as much useful information might be derived therefrom.

They award the first premium of $20 to William Ingells, of Volney, Oswego county, for raising 142 bushels measure of shelled corn on one acre of land.

And the second premium of $10 to J. F. Osborn, of Cayuga county, for raising 144 bushels, weight 56 lbs. to the bushel, on one acre of land; but the mode of ascertaining the quantity was not wholly satisfactory to the committee.

There were five competitors for oats, all very highly deserving of commendation.

They award the first premium of $15 to D. W. Weeks, of Watertown, Jefferson county, for raising 113½ bushels on one acre of land.

They award the second premium of $8 to John S. Jones, of East Bloomfield, Ontario county, for raising 102½ bushels on one acre of land.

And they would recommend the awarding of a premium of $5 to Amos A. Egleston, of Greenwich, Washington county, for the peculiar excellence of the specimen presented by him, weighing 42 lbs. to the bushel, it being also a large crop.

There were no applicants for peas.

H. D. GROVE,
HENRY HOLMES,
HOWELL GARDNER,
T. W. SANDERS,
JOHN A. McNEIL.

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REPORT ON ROOT CROPS.

The committee to whom was referred the duty of adjudging premiums on root crops, report:

That upon the inspection of the various applications made by the several individuals, which came within the duties of this committee, they found themselves exceedingly embarrassed in the fulfilment of their trust, from the want of the formalities required by the rules of the Society, as well as by the want of evidence to satisfy the committee of the relative merits of the different applications.

The committee have unanimously come to the conclusion to reject all applications that purport to have been harvested, gathered, and estimated by measuring a few rods or other small portion of the acre required by the rules, and also those which have not the evidence of a correct survey.

Several descriptions of the quality of soil, manure used, labor expended, and other expenses incurred in producing the results stated, are so imperfect that it was impossible to arrive at the comparative merits of the crops, as to the economy of expense; all of which defects the committee think can be remedied another year, by having examples of *blank forms* made public through the *agricultural press*, as it is a well settled principle, in the minds of this committee, that no man can or should be allowed to compete for premiums, who is not liberal and patriotic enough in the great first cause of national prosperity, to put himself in *that way* of procuring the necessary information from *that source.*

The committee think that several of the rejected crops are very meritorious, if the mere dictum of the growers was to be taken as proof, and in several cases would have taken the first premiums, had these oversights been properly avoided.

The committee think it no more than an act of justice to mention the crop of ruta baga turnips of Mr. F. P. Root, of Sweden, Monroe county, asserted as producing 1,200 bushels per acre, at 60 lbs. weight per bushel; also the crops of Mr. George Shaffer, of Wheatland, Monroe county, which purports to have produced the very large amount of 1,160 bushels of sugar beets and 603½ bushels of carrots per acre, at 60 lbs. per bushel.

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The committee award the following premiums:

For potatoes—To Phineas Hardy, of Le Ray, Jefferson county, first premium, for 472 bushels per acre, $15. To H. D. Grove, of Hoosick, Rensselaer county, second premium, for 440 bushels per acre, $8.

For ruta baga—to W. B. Ludlow, of Claverack, Columbia county, first premium, for 1,025½ bushels per acre, $15. To George Shaffer, of Wheatland, Monroe county, second premium, for 552 bushels per acre, $8.

Sugar beet—to S. B. Vail, of Mount Laurel Farm, Columbia county, first premium, for 559 bushels per acre, at 60 lbs. per bushel, $15.

G. V. SACKET,
L. A. MORRELL,
E. P. PRENTICE,
L. B. LANGWORTHY,
PATRICK H. COWEN.

The committee appointed to examine that beautiful production of art, called the *Amazon Bonnet*, exhibited to the Society by Messrs. Valentine & Eaton, No. 121 Water street, New-York, beg leave most respectfully to report:

That they entered upon the discharge of the duties devolving upon them, with some little distrust of their ability to do justice to the important subject committed to their charge, from the consideration that this almost indispensable article of female apparel had not hitherto been the subject of much of their attention. To obviate, however, this difficulty, they called to their aid a number of intelligent ladies, by whose taste and superior judgment in these matters, they are bound to acknowledge they were in a great measure controlled.

This specimen of ingenuity, doubtless from some fair hand, commends itself to the American public, from various considerations. It combines great elegance and beauty, with strength and durability. It is manufactured from the finest quality of *Manilla* grass. Six thousand five hundred fibres, woven together, will make about one hundred yards of braid, which quantity will make one of the finest class of bonnets. This substantial material may be twisted into an endless variety of patterns, and is susceptible of any color or figure that taste or fancy may dictate. This bonnet can be taken apart, and washed or cleansed

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with ease, and put together again, losing thereby none of its original beauty or value. Its texture and durability have never been equalled; and for beauty, it surpasses almost any thing of the kind, either domestic or foreign. The raw material from which it is manufactured is imported, but is of small value compared with the labor required in weaving or braiding the same. If it comes into general use, of which we cannot entertain a doubt, it will open a vast field of productive industry to the many indigent females and children of our large cities and populous towns. If it supplants, as we trust it may, the foreign articles used for this indispensable covering, it may become a source not only of individual, but great national wealth. We commend this bonnet to the patronage of the American ladies, and hope soon to see many, very many of their heads adorned by this evidence of good taste and patriotic feeling. Benevolence and charity to a large class of their own sex, who are in destitute circumstances, should prompt them to encourage the production of an article that will afford employment, and consequently comfort and happiness, to thousands of indigent, but worthy females. It is a false and anti-American pride which is satisfied with nothing but that which is "far fetched and dear bought."

J. J. VIELE,
T. GOODSELL,
HENRY S. RANDALL.

The committee on unenumerated articles, would respectfully report:

That they have examined specimens of twelve different colors of sewing silk, manufactured by convicts in the Auburn State Prison, and presented by the agent, for exhibition. This article was well wrought, and in the opinion of your committee, assisted by the judgment of two respectable merchant tailors of the city of Albany, was pronounced, certainly not inferior to some of the best Italian silk, with which it was compared. Some of the colors had not the lustre, and, in such cases, the silk had not the delicate softness of the Italian. Your committee considered this attributable to some imperfection of the dye, which was used. It was of a larger thread than the Italian, evener and more hardly twisted. Twisted less hardly, your committee are of opinion, that a better gloss would be obtained, and that it would work more freely in sewing. On the whole, there can be but little doubt that it affords a striking example of the facility with which this valuable branch of industry may be introduced and rendered productive in our country. Its introduction into our penitentiaries, will, without interfering with the

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interests of any class of mechanics, now existing among us, furnish means of saving the community from the burden of supporting a body of men, whose health and welfare are alike promoted by the amount of labor necessary to support themselves.

The second object of exhibition presented to your committee, was a specimen of flax raised by J. A. McNeil, of Washington county. The crop was 376 lbs. of flax, and 15 bushels flax seed, on one and a quarter acres, or at the rate of 300 lbs. of flax, and 12 bushels of seed per acre. The flax is deemed of good quality. The seed was not exhibited. The crop is represented as taken after two crops of corn, and no manure put upon the land. The form of expression here used, is equivocal; and, whether it is intended to say that no manure was used for either crop, or none for the flax, does not appear. If no manure was used for either crop, the yield, though not remarkable, is very good for so dry a season as the past, and indicates that the soil performed its duty, if the cultivator neglected his.

There were exhibited, likewise, by Mr. Van Vost, of Albany, a few bunches of Isabella grapes, in a state of perfect preservation, and of a very fine quality. The ends of the stems, when plucked, were sealed with common sealing-wax, and the grapes placed in a stone jar, with no covering whatever. Your committee have never seen at this season of the year, grapes so well preserved, even when far more troublesome and expensive processes have been resorted to.

HENRY S. RANDALL,
HENRY COLMAN,
LUTHER TUCKER,
W. B. LUDLOW.

The following sketch of the proceedings, from the Cultivator, with the officers elected for the year 1842, will close this part of the present report.

On motion of Dr. J. P. Beekman of Columbia,

Resolved, That the thanks of the Society be presented to the Executive Committee for their successful exertions in raising funds for the treasury.

On motion of B. P. Johnson, Esq., of Oneida,

Resolved, That the thanks of the Society be presented to P. N. Rust, Esq., of Syracuse, for the splendid quarter of beef presented by

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him to the Society, the avails of which have been applied in aid of its funds.

The report of the corresponding secretary H. S. Randall, Esq., was then read and accepted, and the thanks of the Society voted to him, for the able manner in which he had performed the duties devolving upon him.

On motion of H. S. Randall, Esq.,

Resolved, That a committee, to consist of all the presidents of the county societies present, and a delegate from each county society not represented by its president, be appointed to nominate officers of the Society for the ensuing year.

On motion of J. J. Viele, Esq., of Rensselaer, the same committee were instructed to fix a time and place for holding the next Fair of the Society.

On motion of J. S. Gould, of Columbia,

Resolved, That the Executive Committee be requested to procure a dynamometer of superior workmanship, for the use of the State Society, and that it be recommended to the several county societies to procure one for the use of their respective societies.

On motion of Gen. Clark, of Washington,

Resolved, That the Executive Committee be instructed to offer gold medals or pieces of plate, or their equivalent in money, to the authors of the best essays upon such subjects as the committee shall deem best calculated to promote the cause of agriculture—the successful essays to be the property of the Society. The list of premiums for essays to be issuedeight months previous to the next annual meeting.

Mr. McIntyre, from the committee to nominate officers for the ensuing year, reported the following, who were unanimously elected :

JAMES S. WADSWORTH, Geneseo, *President.*

Vice Presidents.

1st	district,	Jeremiah Johnson, Brooklyn.
2d	"	Robert Deniston, Salisbury Mills.
3d	"	Anthony Van Bergen, Coxsackie.
4th	"	John Savage, Salem.
5th	"	Orville Hungerford, Watertown.

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6th " George J. Pumpelly, Owego.
7th " John M. Sherwood, Auburn.
8th " L. B. Langworthy, Rochester.[1]

Henry S. Randall, Cortland Village, *Cor. Secretary.*
Ezra P. Prentice, Albany, *Treasurer.*
Luther Tucker, Albany, *Recording Secretary.*

Additional Members of the Executive Committee.

Alexander Walsh, Lansingburgh.
George Vail, Troy.
Henry D. Grove, Buskirk's Bridge.
J. McDonald McIntyre, Albany.
James L'Amoreux, Albany.

On the report of the same committee, it was

Resolved, That we recommend to the Executive Committee to hold the next Fair of the Society on the 28th and 29th days of September next, in Albany or its vicinity, and that we further recommend that the Fair of 1843 be held at Rochester.

On motion of L. A. Morrell, Esq., of Tompkins,

Resolved, That the thanks of the Society be presented to the Young Men's Association of Albany, for the use of their Lecture Room, and for their polite invitation to the members to visit their Reading Room and Library.

On motion, the Society then adjourned, to meet at the Capitol, at 7 o'clock, P. M.

Evening Meeting.

The Society convened at the Capitol, pursuant to adjournment, at 7 o'clock, P. M., when the annual address was delivered by the president, J. B. Nott, Esq.

On motion of J. J. Viele, Esq., it was

Resolved, That the thanks of the Society be presented to Joel B. Nott, Esq., for his able and eloquent address, delivered on this occasion; and that a committee of three be appointed to solicit a copy of the same for publication. [Committee—Messrs. Viele, Grove, and Walsh.]

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On motion of Dr. GOODSELL, of Utica,

Resolved, That this Society recommend to the county agricultural societies to use their exertions to establish town societies.

On motion of J. B. NOTT, Esq.

Resolved, That a committee of five be appointed to report at the next meeting, on the propriety of establishing an Agricultural Board for this State. [Committee—Messrs. Nott, Van Bergen, Beekman, Ludlow and Viele.]

Amendments to the Constitution.

On motion of J. B. Nott, Esq.

Resolved, That no article of the constitution can hereafter be altered or amended, without a notice thereof being given one year before such alteration.

Mr. Fuller gave notice that at the next annual meeting of the Society, a motion will be made to amend the constitution, so that presidents of the county agricultural societies shall be ex-officio members of the Executive Committee of the said Society.

The Society then adjourned, *sine die*.

The Executive Committee cannot close this part of their report, referring as it does to their own immediate acts, without expressing a feeling of satisfaction at the triumphant success which has attended the efforts of the State Society, during this, the first year of its reorganization, to promote the interests of agriculture within the State. The manner in which the efforts of the Executive Committee have been seconded by gentlemen in all parts of the State, the prompt manner in which the necessary funds for premiums have been furnished, the very liberal manner in which so many of the most estimable citizens have made themselves life members of the Society; all have contributed to prove to us that there is a deep feeling in favor of an improved system of husbandry developing itself among us, which only needs to be skilfully directed, and furnished with some central point of action, such as is offered by the State Society, to be productive of the best results. The experience of the past year, has agreed with that of other years, and other states and countries, as to the beneficial effect which such societies exercise, in bringing to the notice of farmers im-

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proved implements, improved stock, improved grains and vegetables, and improved modes of culture. It proves that a spirit of laudable emulation is by them excited; that agreeable associations and friendships are formed; and the spirit of exclusiveness broken down and done away. It is not the number or the amount of the premiums distributed, that in our opinion constitutes the great agent of good in such societies, though these are not without their influence in awakening attention to the subject. It is the bringing mind in contact with mind, the awaken- of new hopes and prospects, the additions to our actual stock of knowledge, and the elevated state of feeling which a proper consciousness of a man's position and importance in society is sure to give, to which the beneficial effects traced to agricultural associations are mainly to be attributed. Such, the committee are happy in believing, have been the results of the efforts made in this State, to advance agriculture during the past year; and in what has been done is seen the promise of still more brilliant results, when experience shall have corrected past errors, and pointed out the most direct and certain way to attain the great objects aimed in the formation of the New-York State Agricultural and its affiliated societies.

ADDRESS.

GENTLEMEN—This is the first annual meeting of the present New-York State Agricultural Society that has excited interest or awakened hope. Previous anniversaries have been cheering only because the early friends of the Society, "that small but gallant band," have annually displayed an unwavering confidence in the good of their cause, and an indomitable resolution to secure, at all hazards, its ultimate and complete triumph.

Our present meeting awakens the liveliest interest, not because the most animating hopes of future and enlarged success are reasonably awakened, but because we are enjoying the fruits of a recent and a glorious triumph. Heretofore the Society was neither aided by the State nor encouraged by the people. But we are called upon at our present annual meeting to express our hearty thanks for the liberal aid we have received from the one, and the abundant patronage extended to us by the other.

The Fair held by the society at Syracuse, though a most unusual, was nevertheless a most successful, experiment. It exceeded our most

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sanguine expectations, not more by the collection of animals and implements, splendid as they were, than by the crowd of intelligent farmers, from almost every locality in the land, that thronged its booths. This experiment is fraught with good—with the greatest good to the farming interest; we therefore owe much, and the community owes much to the moral courage of the men who wisely projected and successfully prosecuted this pioneer movement—much to the enlightened munificence that furnished the requisite funds—much to the magnanimity of those who, overcoming local prejudices, forebore to press local claims—much to the generous hospitality of the county, that, having invited us to meet them on this occasion, filled, both to us and to the community, the measure of their duty.

Every event that dignifies any of the laborious callings of the industrious classes of the community, is an event of importance, and will be so hailed by every rightly constituted mind. But an event which strengthens our attachment to the soil that gave us birth, and that augments the interest that is felt for that avocation (the most important of all avocations,) that furnishes subsistence to the community, will surely be held as an event of the rarest importance.

Will a career, therefore, of such pressing moment, begun under such favorable auspices and with such cheering prospects, will its course be steadily progressive, or will it come to an abrupt and inglorious termination?

The first State Agricultural Society was formed by the sages of the revolution, men of worth and standing, as wise and as eminent men as the State had then produced; and I may add, she has not as yet produced any more eminent. Their labours were of the utmost importance to our fathers; and we the sons also, though unconscious of so doing, are nevertheless reaping the most substantial benefits from their enterprise and foresight. The agricultural scholar will ever read the transactions of that society with the deepest interest; and the historian will form from them one of the most brilliant chapters in the history of of our State. If there ever existed an agricultural society whose permanent duration was probable, that was the society; whether we consider the standing of its members, or the character of its labors. Yet it has passed from existence, and so completely passed, that few among us are aware of the debt of gratitude we owe to its illustrious founders.

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The Society of 1818, was not more permanent in its duration, though its labors, being better known, are more highly appreciated than those of its distinguished forerunner.

Is the Society of 1841 to follow in the same gloomy path, or does a more fortunate destiny await it? How far the transactions of the Society may control its destiny, remains yet to be seen; but I trust, fellow members, that it is our aim to render our doings as abiding and beneficial in their influence, and as brilliant in their character, as were those of either of our predecessors.

Nor are we as yet able to say how far the standing of our members will give us moral influence with the community. As yet we have enrolled only, I will not say obscure men, but only men busily engaged in the active pursuits of life. Scarcely a man holding an official station, except a few members of the Legislature, has as yet countenanced us; scarcely a member of the learned professions is on our lists, and but few, very few, men of wealth and leisure. Prophecy is history reversed, it is said; and can our destiny then be confidently predicted? It is a question upon which, fellow members, we must seriously and anxiously ponder.

Is there any thing inherent in the constitution and structure of agricultural societies, that renders them *necessarily* ephemeral in their character? Other Societies, whether literary or scientific, flourish even "from age to age." And those whose object is the encouragement of other arts, whether the fine or the useful, are scarcely less enduring. Why is it then, that agricultural societies are debarred from a participation in this species of immortality, if I may be allowed the expression? As if we were so completely earth born in our character, that the ethereal spark can no more be communicated to us than to the clods we till. Something may possibly depend upon the intelligence and character of the people among whom the good seed is sown; for there are a few places upon which, "after it has sprung up, it has not always withered away."

The Highland Society of Scotland, with whose history and doings we would do well to make ourselves intimately acquainted, and the Berkshire Society in the State of Massachusetts, are both of them green in their old age. They have outlived the generation that brought them

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into existence; and, if we judge from their recent fairs, they are likely long to outlive the generation immediately interested in their welfare.

The people by whom these societies were established, and among whom they flourish, are remarkable for their thrift, their sharpness and their intelligence; and this fact, taken in connection with the duration of their agricultural societies, should have its weight with those who question the utility of agricultural associations generally. But the question recurs, is the duration as well as the influence of these Societies owing to the high degree of civilization that prevails in their respective communities, or to some wise provision in their constitution, or to some shrewd principle in their management?

That the claim to superior intelligence does not fully meet the question, is evidenced by the fact that the English Agricultural Society, though established by men who were not a whit less intelligent than the canny Scott and equally good farmers, failed, completely failed. It is true that it did good, great good, to the reading and reflecting farmer; but it never reached the multitude by its influence, never effected that improvement in farming, which was ardently desired. But the present English Society is now literally among the wonders of the civilized world; one of the most splendid of those results that flow from accumulated wealth, and an improved agriculture; and it is so, because it has been remodeled after the plan of the Highland Society; and goes forth annually now to one place and again to another, to bestow its golden premiums at the ploughing matches and cattle shows it has so wisely established.

Again, are *we* willing to concede to our neighbors of Berkshire, any marked superiority of intellect? And if we are, that superiority is not so marked that we are compelled to ascribe to it solely the brilliant success which has uniformly attended the course of their Agricultural Society. Crowded as the valley of the Housatonic is with an intelligent population, yet it is not to us what the vale of Attica was to Greece. Nor are we so perfectly Bœotian in our character, as to have preëminently failed, where they have as preëminently succeeded, solely "from lack of knowledge." We are all aware, too, that the cause of agriculture has recently received among us an impetus which it never before felt. But are *we* willing to ascribe this salutary movement to some sudden and unaccountable accession to the stock of *our* intelligence?

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We are therefore driven to the conclusion that the eminent success of these pattern societies is owing mainly to a policy, which, whether it was the result of a wise foresight, or was merely fortuitous, has at any rate interwoven their existence with the humble enjoyments of a farming people; and thus has their duration become as permanent, and their influence as marked, as that of any of the institutions that are connected with the fetes and festivities as well as the improvement of the people. Their fairs and cattle shows have become so intimately connected with the habits of their people, that they constitute part and parcel of their social existence. At them, the man of business consummates his bargains, and the man of leisure his festive enjoyments. They have become the trysting place of the lover, the bazaar of the merchant, and the resort of the gay. Age promises to youth a participation in their recurrence, as the reward of diligence and application. The solitary ploughman as he laps his furrows with skill and judgment, has an eye to the future ploughing match; while the careful hind, as he tends his flock, feels no less the influence of the future cattle show.

Our path, therefore, lies plain before us, and it is indicated as well by our own experience, as far as we have any, as by that of others. There are men, and men too of the highest standing, men from whom "you might have hoped better things," who have year after year neglected your annual meeting, and even sneered at your labors; who, nevertheless, became so interested in the September Fair, that they publicly acknowledged their error, and are now as intensely anxious about our future welfare, as the earliest and steadiest friend among us.

We must, therefore, have an Annual Fair and Cattle Show, if we mean to continue as a society, or to exercise any salutary influence over the public. Here, as well as elsewhere, the happiest results will follow, when we shall have so augmented the amount as well as increased the number of our premiums, that we shall stimulate by this influence as well the lone widow that sits by her solitary spinning wheel, as the capitalist whose wealth puts in motion a thousand wheels; as well the humble laborer who owns not even the implements of his toil, as the rich farmer that rejoices in his broad acres; in a word, every department of rural or of household industry.

Although our object is plainly before us, the question is, how can we compass it? Our treasury is indeed not empty, but we need at least

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one thousand punctually paying members. Our talley does not amount to one-half of that number, and from these we cannot hope to realize scarcely more than two-thirds of the amount that is due. These are humiliating facts, but it is my duty to place them prominently before you, that you may the better judge of the magnitude of that task which was voluntarily assumed by the generous spirits whose duties are now discharged, and which will have to be assumed by those who may have the honor to succeed them.

It has been urged, and it is unquestionably true, that if the price of membership was increased, our funds, would be materially augmented. Still it is very questionable whether such a measure would be one of the soundest policy. True it is, the price of membership is low, very low; but it never should exceed that sum which the humblest individual in the land would be willing to pay were he desirous of joining your numbers. Poverty should exclude no man who is desirous of becoming one of an association of farmers. In the judgment of those who have taken the liveliest interest in our affairs, and who have had the most to do with the details of our business, and therefore the most competent to decide, the funds of the society would be materially increased by making one of your offices a salaried office, and imposing upon the incumbent, the additional duty of soliciting subscriptions. It therefore is a matter worthy your serious attention.

What would be the effect upon our funds, were the Society to establish a Board of Agriculture, to be composed of the Executive Committee, and as many more as the Society should see fit to select, who should annually pay into its treasury a sum larger than that which is required for mere membership, it is not difficult to decide. Such a project, if feasible, will not only secure us the requisite funds, but the requisite agents also to give eclat and effect to our annual fair, a measure so indispensable to the welfare of the Society. It does appear to me that this plan is feasible. There are men in the community who are desirous to foster every good measure that tends to improve the moral and intellectual condition of their fellow citizens—men who are the heroic advocates of the temperance cause, liberal contributors to the library of the apprentice, and wise supporters of the young men's association. Such men need only to understand that our object is not merely a secular object, not merely an object of shillings and of pence, but that we design also, if possible, to improve the intellectual condition of a

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large class of our laboring population, and though not farmers themselves, they will joyfully assist those that are, in procuring laborers for fields already white to the harvest.

Within this few years in the cities and larger villages, literary or scientific associations have been formed, before whom lectures are being delivered upon every possible topic that can interest the popular mind. Into this service is pressed the best talent in the land. Men holding, or having held, the highest official stations—men immersed in the professional pursuits—men who have no pursuits but those that are literary or scientific—churchmen and laymen, historians and poets, are all sedulously laboring to create, if I may be allowed the expression, a popular university—a university, too, which will have an influence as salutary and extensive as universities of a severer cast.

The farmer is by his locality necessarily excluded from the benefits that result from this admirable arrangement; consequently the rest of the commnnity are rapidly passing him in the career of mental improvement. It is, therefore, incumbent on us who rightly appreciate these valuable institutions, to sympathize with those who are engaged with us in a kindred pursuit, and to secure to them the amplest instruction, not only upon agriculture itself, but upon every kindred topic. No plan can be devised more effectual for the accomplishment of this noble purpose, than the organization of a Board of Agriculture; and but a brief period will elapse after its adoption before your benign influence will be felt in the remotest valleys of the State.

There is also another class of the community who may by possibility be benefitted by the creation of a Board of Agriculture. Young men, after having finished their academic course, are embarrassed in the choice of their future professions, for they find the professions crowded to excess; so crowded that men of fair talents and respectable industry are rewarded only by mediocre success. Hence it is that we unfortunately find many, too many otherwise respectable men of all political creeds, who are ready at any fortunate crisis to abandon their professions, and seek instead the rewards of office. I do not speak of those whose ambition prompts them, regardless of the cost, to climb that bold eminence which has always been found, it is said, too "narrow for friendship, and too slippery for safety," for this is a legitimate, though alas! a dazzling object of pursuit. But I speak of those who make political pursuit a mere question of profit and of loss. To such men we

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can point out a field of exertion, where at least "for a portion of their life, their powers would be employed in a manner less revolting to conscience, and with results quite as useful to their country and to the world."

It is important, therefore, to do away the erroneous impression that there is no other pursuit worthy the attention of an educated man, than the so called learned professions, and that a liberal education is thrown away if bestowed upon a farmer. If the farmer must of necessity be a mere rustic, and any one who engages in the pursuit, will allow himself to sink to this inglorious level, then will a very humble education fit him for his untoward destiny. But if a farmer is desirous of taking rank with the Gaylords, the Colmans, the Phinneys of our land, and with men of kindred spirit in other lands, then will his calling give abundant occupation to his talents, however gifted, and his attainments, however profound. This is not all: a farmer may be even a man of refined taste and exquisite genius. A good farm should not be characterized alone by its trim fence and its straight furrows, but it should also be an object of beauty. "Man made the town, God made the farm;" and it ought to bear the impress of his beautiful workmanship There are farms too, where, by the skillful disposition of wood and of shrubbery, there is, as it were, grouped into a scene of surpassing loveliness, the beetling cliff, the smiling meadow, and the meandering river. And shall the claims to taste and genius be denied to a farmer who can create such a scene, and be awarded solely to him who can transfer it to the living canvass? It may be said that these higher accomplishments constitute no part of practical farming, because it contributes nothing directly to a farmer's prosperity. "To such men," as Cheever says, "God himself, as the creator of the universe, cannot appear as an architect of practical wisdom, for he has covered the earth with objects, the sky and the clouds with tints, whose surpassing beauty is their only utility. This beauty is eminently useful, because man who beholds it is a moral," as well as a thrifty being—"because it awakens the soul to moral contemplations, excites the imagination, softens the sensibilities of the heart; because it tells him of his mortality and his immortality, giving him symbols of both, and holding with him a perpetual conversation of the glory and wisdom and goodness of God."

> "To some, the meanest flower that blows, can give
> Thoughts that do often lie too deep for tears."

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If I am asked whether the pursuits of literature are incompatible with the practice of husbandry, I answer that they are at all events incompatible with the practice of a profession. Whoever would woo the muses must bid farewell to professional eminence. But there are farmers, thrifty, laborious farmers, men exposed to the summer's heat and the winter's cold, who are well known in the walks of literature. Why should it be otherwise? There is not an operation of practical husbandry, however humble, that is not immortalized in Thompson's, or Gray's, or Cowper's song. To such men, how melodious was the reaper's song, how graceful the mower's movements, how picturesque the loaded train, groaning beneath the burden of the gathered harvests? Much more then should rural pursuits awaken the high souled eloquence of those who are habitually engaged in them. There was a time, it was olden time 'tis true, but there was a time when pastoral life was deemed especially favorable to sublime conceptions; and one shepherd at any rate has raised through many an age the loftiest emotions, who exclaimed as he stood amid his flock and raised his contemplative eye to yonder firmament: "When I consider thy heavens, the work of thy fingers, the moon and the stars which thou hast ordained, what is man that thou art mindful of him, and the son of man that thou visitest him?"

Agriculture then, is not inimical to the pursuits of science and literature; but still it is too often deemed a degrading employment. "He talks of beeves," said Dr. Johnson sneeringly, of one of his most intimate friends, and yet the ill tempered and ungenerous satire is utterly at variance with even his utilitarian notions. In settling the relative ranks of the various callings of life, it should be remembered that we are governed in our views by old and inveterate prejudices. The scale by which they are graduated, was formed in the ages of ignorance, when men of the learned professions were monks; men of ambition soldiers; and husbandmen, *serfs*. But the times are altered; the pathway to fame no longer leads *exclusively* to fields covered with carnage and slaughter, and may yet lead to fields smiling with the gifts of Ceres and Pomona.

We, therefore, who are ardently attached to our favorite pursuit, who are aware of its privileges and acquainted with its delights, should do all in our power to disabuse the public mind of its mistaken prejudices, and to raise it in the public estimation to the level of the liberal profes-

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sions, so that he may have no fear of losing caste, who exchanges the merchant's counting-room and lawyer's desk, for the pursuits of agriculture.

"Nor ye who live
In luxury and ease, in pomp and pride,
Think these last themes unworthy of your ears.
Such scenes as these the rural Mara sung
To wide imperial Rome, in the full height
Of eloquence and taste, by Greece refined.
In ancient times the sacred plough employed
The kings and awful fathers of mankind;
And some, with whom compared your insect tribes
Are but the beings of a summer's day,
Have held the scale of empire, ruled the storm
Of mighty war; then with unwearied hand
Disdaining little delicacies, seized
The plough and greatly independent lived.
Venerate the plough,
And o'er your hills and long withdrawing vales
Let autumn spread his treasures to the sun,
Luxuriant and unbounded. As the sea
Far through his azure turbulent domain,
Your empire owns, and from a thousand shores
Wafts all the pomp of life into your ports;
So with superior boon may your rich soil
Exuberant's Nature's better blessings pour
O'er every land, the naked nations clothe,
And be the exhaustless granary of a world."

There is however a difficulty of great magnitude in the way of effecting this desirable change in our mistaken notions of the relative importance of the pursuits of life. In other pursuits of life, men of chastened ambition are actuated as much by the applause and honors that await upon success, as by more substantial rewards. But let the farmer be ever so successful in this career, the breath of popular applause will never be wafted to his ears, nor are there any honors or offices to which he may exclusively aspire. This hindrance would be measurably abated, if a Board of Agriculture were instituted, and if the Legislature could be prevailed upon to place it in the same relation to agricultural societies and agricultural schools, which *will* hereafter be instituted, that the Board of Regents now occupy in relation to literature and the schools. There will then be one honorable post to which the farmer may exclusively aspire. It strikes me that this suggestion is not devoid of importance, and ought to have its due weight with us in coming to a wise decision upon this interesting question.

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I have felt it my duty to recommend to the Society the employment of a paid agent to transact the burthensome portion of its business. I also feel it incumbent upon me to say that agricultural rooms should be obtained for the purpose, not only of having a place of business for the Socicty, but also a place where can be laid, no matter how slight in the commencement, the foundation of an Agricultural Museum and Library. The foreign press is teeming with agricultural productions, which are far too expensive for the limited means of the agricultural students that exist among us; the perusal of which, by them, as well as by the common farmer, would be of essential service to American Agriculture. Not this alone; the agricultural mechanic has conferred essential benefit upon the farming interest by those admirable creations of his genius which have far outstripped all the rest of the world in simplicity and cheapness of construction, as well as in the accuracy and perfection of their work. These men have benefits yet in store for us; and a museum that shall contain, among other things, models of the improvements in agricultural implements, may prove to them and to us, an invaluable store house.

When agricultural science and literature are spoken of, many men are apt to sneer, as if it were a matter of mere pretence; as if there were not, and could not be, anything of the kind. Such men imagine that a volume of obsolete veterinary quackery constitutes the sum and substance of a farmer's library. Such men are not aware that there is such a publication as the Quarterly Journal of Agriculture, whose pages few of us have sufficient science to read understandingly, and fewer still sufficient to contribute a respectable article to its valuable collections.

Strange is it that, because men live in a world admirably adapted to their wants, where art can, with rude power, and still ruder implements, delve its way to some useful and practicable results, that they should therefore draw the impotent conclusion that science is useless. Much had been accomplished in the arts, in the long lapse of ages; but their progress was scarcely perceptible, "when science came with thoughtful brow and penetrating eye," to span the heavens with her arch, to measure the earth with her rod, to weigh the mountains in her scales, fathom the ocean with her plummet, and "to decompose matter into its atomic elements." Since then the arts have advanced with rapid strides, and made more progress in years than they formerly

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did in ages. The union of science with art has given to art gigantic power. She is now literally levelling the mountains and filling up the valleys, and spanning the ocean in her onward course. The union of science with art has given consummate skill to art. She is now preparing dyes that surpass in brilliancy the Tyrian purple. She now weaves a web of finer texture and more exquisite finish than the fabled tissue of Eastern genii. The union of science and art has given to art fearless courage. She no longer "creeps along the coast from headland to headland," but launches forth into the wide and trackless ocean of discovery. If we wish accurately to gauge the advance which European art has made since the revival of science, we have only to compare them with the Chinese. Europeans found at the commencement of their intercourse with the Chinese, that then the Chinese arts were, and probably had been for centuries, far in advance of those in Europe. This intercourse has been uninterrupted from the days of Vasco De Gama until the present hour, yet we are not aware that the Chinese have made the slightest advance in the arts, while the European has advanced and is advancing with almost miraculous progress.

If it be said that this is all true, yet the benefits which agriculture has received from science are not of so marked a character as to place it in the same category with the other arts. If science has not shed upon agriculture the fullest light, it is because she had it not to shed; because she had not herself made those attainments that would enable her to do so. But her course is onward; and, because she is cultivating organic chemistry with sedulous zeal, in which she cannot make a single discovery without benefitting the art of agriculture, we are prepared for the happiest results. Though the sun of agricultural science has but just risen, yet the first level beams that have fallen on our fields, has revealed a world of wonders, and we are eagerly looking forward for the most remarkable developments; and the volume which Leibig has recently given us, is evidence that we shall not be disappointed.

The agricultural movements which have been made, and those which will hereafter be made, are not too far in advance of the spirit of the age. The increasing wealth of the United States, and the improved moral and intellectual condition of the people, must inevitably be accompanied with a corresponding improvement in the arts of husbandry. There is no surer index of the moral and prosperous condition of a people, than that which is afforded by the state of their agriculture.

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It is exemplified in the altered condition of every locality in your land from which intemperance and vice has been driven, and sobriety and industry introduced. Nor here alone. The savage has no agriculture. The semi-barbarian little; and even civilized nations that are deficient in the tone of their moral character, though rich in a fruitful soil and a genial clime, scarcely more. Show me fields where the art of the husbandman is in its highest perfection, where the landscape is diversified by trees and shrubbery, and where orchards and vineyards, and olive-yards abound, and you show me fields that are tilled by a prosperous, refined and intelligent people.

Of all that is inimical to the peaceful pursuits of agriculture, the spirit of war is that which is most so. Not because of its devastating horrors, fearful as they are, but because of its demoralizing influence. We do not sufficiently consider the benign influence of peace in meliorating the condition of our own and other civilized nations. "France has no literature," sighed an eloquent Frenchman. "We have books on the mode of raising armies, besieging cities and conquering nations; but France has no literature." But the long peace has wiped away the stigma of the talented Frenchman. The same has been said of us, again and again; but there is now no one department of literature, or even the arts or sciences, in which we are not, at the least, respectable. So too it might have been said that we have farmers, still we have no agriculture; but it can no longer be said; and but a few years will place us in the front rank of *agricultural* nations. Peace has been already prolonged to a most unusual length among civilized nations; should its duration still be of long continuance, imagination can hardly conceive the degree of perfection to which the arts will arrive. How far agriculture will participate in the general blessing, we know not certainly. At all events, the Bible, that book of wisdom, whatever else it may be, speaks of a high state of agriculture, as consequent upon the cessation of war. "Nations," says the prophet, "Nations shall learn war no more; they shall beat their swords into ploughshares, and their spears into pruning hooks." Should this vision of the prophet be realized, we can easily conceive that the wilderness *will* blossom as the rose, and the solitary place *be glad.*

I am aware, gentlemen, that I have trespassed long upon your patience; but if I shall not have offended your sense of propriety, in the remarks I have made, I shall deem myself exceedingly fortunate.

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I cannot close this address without congratulating the society upon the harmony which has thus far prevailed at our annual meeting. The selections of officers, the selection of the place for holding another Fair, subjects, the discussion of which it was feared would agitate and divide the Society, have only cemented us in a closer bond of union. You will, therefore, permit me to express the hope, that on returning to our several counties, we will more zealously labor in the good cause in whose welfare we are so deeply interested.

III. COUNTY SOCIETIES.

In compliance with the law for the promotion of agriculture, it appears from the Governor's message, that agricultural societies were formed during the year 1841, in the counties of Albany, Cayuga, Columbia, Cortland, Delaware, Dutchess, Genesee, Greene, Jefferson, Kings, Livingston, Madison, Montgomery, Niagara, Oneida, Onondaga, Orleans, Otsego, Rensselaer, Saratoga, Seneca, St. Lawrence, Suffolk, Tioga, Tompkins, Washington, Wayne, Yates, Monroe, Orange, Fulton and Hamilton, making, 32 in the whole. Some of these were organized at so late a period that no fairs for the distribution of premiums were held, and from some of the others no reports, or only such as are very imperfect have been received. It is gratifying to receive from all the societies which were organized in season to carry out the objects of the law, and of the State Agricultural Society, assurances that the influence exerted has been of the most favorable kind, and that the bounty of the State has been faithfully applied to the purposes designated. In some instances, mistakes as to the precise manner in which the law was to be understood, and the intentions of the State carried into effect, appear to have been made, but not of such a nature as to prevent the receipt and proper appropriation of the public money. The law makes it the duty of the Executive Committee to prepare from the returns they may receive, such parts and papers as they may deem most suitable, and best calculated to exhibit the present state of agriculture among us, or contribute to its future advancement. The Executive Committee regret to state that returns have been received, only from the counties of Tompkins, Orange, Niagara, Orleans, Monroe, Jefferson, Washington, Oneida, and Steuben, or the societies of these counties, and some of these only show the ordinary proceedings of the societies, without the detailed reports so desirable and necessary to a full

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understanding of their action. From such returns, however, as have been received, the following papers and reports are selected.

TOMPKINS COUNTY AGRICULTURAL SOCIETY.

From the returns received from the county of Tompkins, we select a part of the report of the committee on animals, made at the annual fair, for the justness of the veiws it contains, and the commonness of the errors exposed; and also the statements presented with some of the field crops offered for premiums:

The committee on neat stock, would respectfully report:

That they have examined a large number of animals, many of them of superior quality, but it was with much regret they found so little competition in some of the classes. Your committee cannot believe this would have been the case, had the farmers of this county, fully entering into the spirit and the objects of this society, generally exhibited their valuable animals. The most valuable, excepting in the class comprising oxen and steers, were usually crosses with the Improved Short Horn or Durham breed of cattle. With perhaps, the exception already referred to, your committee consider animals possessing an admixture of this blood, decidedly preferable for the general purposes of the farmer, on the better class of soils. For size and symmetry, for early maturity, and an aptitude to take on flesh of a high quality, as well as milking properties, they stand unrivalled; and we perceive no reason why oxen of the first cross between this breed and our native stock, should be deficient in any of the requisites of working cattle, while they would certainly be far superior for grazing purposes. Indeed, it is, without doubt, in a great measure, owing to their high value in this latter respect, that they are so unfrequently employed in the yoke; the breeder being tempted to dispose of them at three years old, for prices equal to those commanded by full grown oxen of the native breed. They not unfrequently at this age, attain to the (live) weight of from 2,000 to 3,000 lbs.

But, in speaking of the Durhams, your committee have no reference to a breed often called by that name, but whose characteristics are essentially different, and which, by assuming the name, have injured the reputation of the genuine Durhams in several matters, and over various sections of country. We allude to a variety of Yorkshire cattle, readily distinguished by the peculiar conformation of the hind quarter, which is not dissimilar to that of the hog in a high state of fatness.

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Hence, they are designated in some portions of the country as "hog-hams," "pumpkin-rumps," and by other appellations descriptive of their peculiar form. From the hip to the point of the rump, they are short, like the hog; and from the root of the tail to the bottom of the fleshy part of the thigh, the buttock projects outwards, describing more or less completely the segment of a circle, instead of the nearly perpendicular line which distinguishes the true Durham. Marshall, an English author of high authority, calls them the "Cloddy buttocked Yorkshires," and speaks of them as one of the worst breeds known in England. Usually of a deep red color, not destitute, too, of a certain general smoothness and symmetry; growing with great rapidity and thriftiness when young, and attaining a large size, it is by no means singular that they should attract notice and admiration where their properties are unknown; and possessing such qualities, it may perhaps, be asked, what are the counterbalancing disadvantages, which should lead to their condemnation, and which, at this time, calls out this so direct and explicit censure from your committee? The very size, apparent thriftiness, and showy qualities of this breed, form the reasons which have influenced your committee in this course, and from the fact, that such outside qualities are well calculated to deceive the inexperienced. And it is well known, they have so deceived the stock growers in many sections of our State, not only occasioning actual loss, (for we deem them entirely inferior to our native breed of cattle,) but they have retarded improvements; discouraged others, efforts; and not unfrequently led to an entire scepticism on the part of the farmer, as to the feasibility of any improvement in our breeds of cattle. Their bad qualities may be summed up as follows:

Cows often perish in giving birth to their calves; the great size of the rump in the foetus, rendering it impossible to pass the bones of the pelvis.

Though always fleshy, they are never fat; the beef never handsomely mottled with fat and lean; and they are proverbially poor provers, or in other words, do not "tallow well."

Their meat, when killed at any age, has a dark or blue tinge, which renders it far less marketable.

They are decidedly an inferior race of milkers.

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Ithaca, December 1st, 1841.

GENTLEMEN—The following is a statement of the amount per acre of three varieties of corn that I cultivated the present year, and which I offer as competitors for the premiums offered by the society.

First, Dutton corn, one acre produced 7711 lbs. of ears; 100 lbs. of ears taken promiscuously made 82½ lbs. of shelled corn, equal to 6361½ lbs. shelled corn, making 113 33½–56 bushels of corn per acre.

Second, Brown corn, 7,300 lbs. of ears; 100 lbs. of ears made 81¼ lbs. of shelled corn, equal 5,931¼ lbs. of shelled corn, making 105 51¼–56 bushels per acre. There were two acres of this kind in the field; I know of no difference in it, but think one acre as good as the other.

Third, China Tree corn, third crop from seed obtained from William Thorburn, Esq. of Albany. It produced 7,020 lbs. of ears; 100 lbs. of ears made 79½ lbs. of shelled corn, equal to 5,580¾ lbs. or 99 36¾–56 bushels per acre.

The above crop of corn was raised in the same field. The Dutton and China was on a part of the field that has been under cultivation for a time that extends beyond the knowledge of any of the present inhabitants of our village. The Brown corn was on a part of the field that was broke up to subdue the sweet elder that covered it about six years ago, and has been under crop of corn or oats ever since. The China corn grew on the same acre of ground that yielded 100 bushels of Dutton corn in the summer of 1840, and 80 bushels in the summer of 1839. For the present crop the ground was ploughed late last fall. This spring the ground on which the Dutton and China corn grew had 15 loads of unfermented stable manure per acre spread broad cast and ploughed in; the ground marked across the furrows four feet apart for the China and three feet apart for the Dutton; corn planted across the marks the same distance apart, making the Dutton three feet each way and the China four feet each way; seed at the rate of half a bushel per acre, soaked in copperas water and rolled in plaster; corn thinned down to four spears in the hill at the second hoeing. The Dutton and China corn was ploughed during the last week in May, hoed three times, and worked twice with the cultivator; no hilling allowed; the land kept as even and level as may be; the corn cut up at the ground and stouted in small stacks as soon as the principal part is glazed. The Brown corn was planted in rows three feet apart, and hills from sixteen to

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eighteen inches apart in the rows; manured with unfermented manure in the hill, fifteen loads to the acre; seed soaked and plastered as the other was, three-fourths bushels of seed per acre; planted the first week in June; a portion failed in coming up, from bad planting on coarse manure in the hill; replanted about the 12th of June. This corn suffered more from drought than where the manure was spread broadcast; it suffered in earing also, from its being left too thick in the hill, causing the ears to be short. I was absent from home at the time of hoeing and thinning this corn. On my return, about the last of August, I saw the fault, and inquired of the man who had charge of it why it was not thinned out as I directed. He said it looked so *nice* when they hoed it that the men thought it was a pity to *destroy* it, so they killed it with kindness; but it was too late to remedy the evil, and I let it go with from five to ten stalks in a hill. This corn was cultivated in all other respects as the above. I think with proper management I can get a much larger crop of this kind of corn than I have this year. By measure this corn will outshell the Dutton, as will the China, but both fall short of the Dutton by weight, as will be seen above, the Brown 1½ lbs. in 100 lbs. of ears, and the China 3 lbs. in 100 lbs. of ears. The China corn makes beautiful meal for family use, but is too late a variety for elevated lands in this latitude. The acre of China corn produced about four tons of fodder, the Dutton three tons, and the Brown two tons. The Brown corn produced more corn to the quantity of stalks than any variety that I have cultivated.

Yours, &c.

E. CORNELL.

N. Halsey, Esq. L. Gere, Esq. G. P. Frost, Esq. *Committee.*

Subscribed and sworn this 25th day of December, before me.

CALEB B. DRAKE, *J. Peace.*

I certify that the above is a statement and return made by E. Cornell, of a crop of corn raised by him the last year, and for which he is entitled to the first premium of the agricultural society in Tompkins county.

NICOLL HALSEY, *President.*

To the Tompkins County Agricultural Society:

GENTLEMEN—I propose to compete for the premium offered by you for the best acre of corn. The quantity I raised this year from one acre is 99 bushels and 33 pounds. The land on which the corn grew was thirty-two rods by five rods wide, from which we husked 110½

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baskets. I then shelled one basket and weighed it, and which weighed 47 lbs. which multiplied by 110⅓ baskets, would make 5185 lbs., and that divided by 56 lbs. would amount to 92 bushels and 33 pounds, as before stated. The manner of culture—the ground was a clover sod, and was mowed the previous year, after which it was allowed to grow until the clover was in blow, when it was lightly plastered. In the spring I drew on 30 loads of long manure, (about one ton per load,) the ground was once ploughed, the manure raked in the furrows, then harrowed, and marked one way with a light plow about three feet eight inches in width; the corn was then planted (the 17th of May) about one foot distant in the drill, five to six grains in the hill; 18th of June went twice in the row with a light harrow; 29th of June went twice in the row with the cultivator, followed with the hoes, cleared the weeds from the hills and thinned them some. 10th of July went once between the row with the cultivator. 15th of July went twice with the cultivator between the rows, followed with the hoes, and hilled lightly and pulled out the suckers.

Expense.

To drawing manure, one day, with team,	$2 00
Spreading manure, half a day,	0 31
Plowing one day, with team,	2 00
Raking manure in furrow by boy,	0 31
Harrowing and marking out, ¾ day, with team,	1 50
Planting, one day,	0 63
Going through twice with drag,	0 75
Going through twice with cultivator,	0 75
One day hoeing and thinning,	0 63
Going through twice with cultivator,	0 75
Going through once with cultivator,	0 38
One and a quarter of a day hilling and suckering,	0 78
Cutting up the corn, one day,	0 63
Husking corn and binding stalks, three days,	1 88
Drawing stalks, one-third of a day, two hands and team,	0 75
Whole expense,	$14 05

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Cr.

By 92½ bushels of corn, at 50 cents,	$46 25
Two loads of stalks, at $2,	4 00
	$50 25
	14 05
Use of land, profit, &c.	$36 20

Very respectfully, yours, &c.

ELIAS J. AYERS.

December 1st, 1841.

I hereby certify, that I was present and helped harvest the above corn, shelled and weighed the same, and also in measuring the ground as above specified, and that it is correct, to the best of my knowledge and belief.

Witness my hand, the 1st day of Dec. 1841.

JAMES AYERS.

I certify, that the above is a true statement, according to the best of my knowledge and belief.

ELIAS J. AYERS.

Sworn and subscribed this 1st day of Jan. 1842, before me.

C. G. HEATH, *Jus. Peace.*

I certify, that the above is a statement and return made by E. J. Ayers, of a crop of corn raised the last year by him in Tompkins county, and for which he is entitled to the second premium of the Agricultural Society of said county.

NICOLL HALSEY, *President.*

No. I.—*Sugar Beets*, 1841.

One fourth of an acre 199½ bushels. Manured at the rate of 30 loads per acre. Wheat crop the previous year, and no manure.

W. B. REYNOLDS.

No. II.—*Sugar Beets*, 1841.

One fourth of an acre 149 bushels. Manure and previous crop the same as the first.

W. B. REYNOLDS.

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No. III.—*Sugar Beets*, 1841.

One fourth of an acre 125½ bushels. Manured, and previous crop the same as the others.

W. B. REYNOLDS.

They were hoed twice, with four days labor the first time, and two the second; and twice going through with a cultivator and horse one half day each time, was the labor on the whole. Seed 2½ lbs. per acre.

W. B. REYNOLDS.

Potatoes, 1841.

One half acre 161 bushels. Ploughed and hoed once, two days' labor, and one fourth day with horse and plough; 7½ bushels of seed; wheat the previous crop; 20 loads of manure per acre.

W. B. REYNOLDS.

Tompkins County, ss.—Wright B. Reynolds being duly sworn says, that the above statement in relation to the quantity of the crops, as above stated, is correct and true. W. B. REYNOLDS.

Subscribed and sworn, this 27th day of November, 1841, before me,

C. G. HEATH, *Jus. Peace.*

I certify, that the above is a return made by W. B. Reynolds, of crops of beets and potatoes raised by him in Tompkins county the last season, and that there is no competition, there being no others offered. The first premium has been awarded to Mr. Reynolds on said crops.

NICOLL HALSEY, *President.*

I certify, that the foregoing statements of crops raised by Messrs. Cornell, Ayers and Reynolds are true copies of the originals left on file with me, and entered on the records of the Society.

GEO. P. FROST,

Recording Sec'y of Tompkins co. Ag. Society.

N. B.—Mr. Reynolds informed me that he had one acre of the beets, and that the labor above stated was on the whole acre; and it being the first crop he ever raised, he planted them too far apart; the drills were about three feet apart, and the seed being poor, in many places there were no beets growing in the drills.

G. P. FROST.

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ORANGE COUNTY AGRICULTURAL SOCIETY.

A detailed report of the organization and proceedings of this society has been received by the Executive Committee, from which it appears that the premiums awarded by the society, at their October Show and Fair, amounted to $210.

At the exhibition, some Durham calves, a half blood South Down ram, and some very fine pumpkins, were shown by David C. Bull, all of which received premiums. The following is Mr. Bull's statement, presented to the society:

To the Treasurer of the Orange County Agricultural Society.

SIR—I herewith give you a statement of the manner in which my calves were reared. They were permitted to suck the cow until they were about twelve or fourteen days old; then fed with sweet milk about eight or ten days; then I added a small quantity of butterless milk, and kept increasing the quantity for about two or three weeks; then butterless milk alone; continued this until about the last of July; then kept on pasture alone till about the middle of September; then they were fed pumpkins with my beef cattle, while the pumpkins lasted.

The buck sheep was from a Merino ewe and a South Down buck, an April lamb; taken from the ewe in July; kept on pasture, with a little salt, mixed with a little wheat bran or ground feed two or three times a week, together with pasture or hay.

As for the pumpkins, the seeds were mixed with the corn, wet with butterless milk, to make the plaster stick, and dropped in the hill at the same time with the corn. When they came up clearly, the ground about them was harrowed, afterwards ploughed and hoed, ploughed four times through, and hoed twice during the season.

DAVID C. BULL.

To CHARLES MORRELL, Esq.

MONROE AND STEUBEN AGRICULTURAL SOCIETIES.

Reports of the organization, officers chosen, and time of holding the fairs of these societies, have been received; but no statements of farm crops, &c. have come to hand. The Fair of Monroe county, at Rochester, was one of the best conducted and spirited exhibitions in the State; and that of Steuben county was numerously attended, and evi-

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dently produced a favorable impression. From the report of the last named society, we copy the following paragraph:

"The society held a Fair on the 10th of November, and premiums to the amount of $175, on animals, products, and manufactured articles, were awarded; thus complying, as near as circumstances would permit, with the requisitions of the law passed at the last session of the Legislature."

ORLEANS COUNTY AGRICULTURAL SOCIETY.

To the Executive Committee of the
New-York State Agricultural Society.

GENTLEMEN—The following is an abstract of the proceedings of the Orleans County Agricultural Society, for 1841.

Said society was organized on the 3d day of July last, by adopting a constitution, and appointing a president and nine vice-presidents, (one from each town in the county,) a corresponding and recording secretary, and treasurer, who, together, constitute the executive committee of said society.

Thirty-seven members were obtained on the adoption of the constitution, and one hundred and eighty-seven since; making, in all, two hundred and twenty-four members, at an annual fee of 50 cents each, which amount ($112) has been paid into the treasury, together with $75 received from the Comptroller.

Our first annual Fair was held on the 14th of October last, at which time $149 was paid for premiums on horses, cattle, sheep, swine, field crops, horticultural articles, &c. &c., and $9.13 for printing, &c., and there is now in the treasury $28.87 unexpended.

Enclosed are the reports of most of the members who received premiums, and although very deficient, are the best we could obtain. Owing to the advanced season of the year, and the difficulty of obtaining the necessary funds, very little competition was elicited, and on field and horticultural crops, none whatever.

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Deficient as are our reports from members, the right spirit is awakened in our county, and by the experience already gained, we are in hopes to present very different results the coming year.

CHARLES LEE, *President*,
HORACE CHASE, *Secretary*,
Orleans County Agricultural Society.

Orleans county, Dec. 17th, 1841.

From the statements that accompanied this report, we copy the two following:

The potatoes upon which a premium has been awarded to me, were grown upon a piece of rich, mucky ground, upon which nothing had ever before been raised. It had been used for a hog pasture for two years before the potatoes were planted. The ground was ploughed once, and harrowed twice, and the potatoes were planted close together one way, and about two and a half feet the other, and hoed but once. The product was 700 bushels per acre.

JEREMIAH BROWN.

Ridgeway, October 14th, 1841.

Premium Corn Crop.

I hereby certify that the corn raised by me on one acre, and for which a premium has been awarded me, is 112 bushels and 30 quarts.

This corn was planted on corn stubble; the ground was not ploughed last spring; the hills were only split and turned together, and the corn planted on the ridge made by these furrows. The corn was planted three feet apart each way, and three stalks were allowed to stand in a hill. It was harrowed once, and hoed and ploughed three times. There was not any manure put on to the land; it was rather a lowish piece of ground, inclining to muck. There was about two bushels of plaster used upon it.

A. A. MONTROSS.

Gaines, October 14, 1841.

ONEIDA COUNTY AGRICULTURAL SOCIETY.

This society appears to be very efficiently organized, and the following abstract of the proceedings of the association for 1841, furnished the Executive Committee by the corresponding secretary, will show the flourishing condition of the society.

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Abstract of proceedings of the Oneida Co. Agricultural Society.

Society formed April 20th, 1841, at Rome, and appointed officers and adopted their constitution.

A meeting of officers was held at Rome on the 7th of May, 1841, at which a committee of three was appointed for each town in the county. At the same time a resolution was adopted to hold a fair on the 3d Wednesday of October, and also that the sum of $400 should be raised.

A list of articles was presented and agreed upon, on which premiums are to be awarded.

The corresponding secretary was directed to address a circular to each committee.

Another meeting was held on the 16th of June, and an additional committee of three appointed in each town to circulate the constitution and raise funds. A list of premiums was agreed upon at this meeting payable in money; and committees were appointed for the annual fair.

Another meeting was held July 26th. Rules for the fair were adopted, and committees of arrangements appointed.

October 19th, officers met, supplied vacancies in the committees, and prepared for the fair.

October 20 and 21, fair held, and $616 paid in premiums.

Whole number of members of the society,.....342

Amount of money contributed,.....	$423 00	
Received from State,.....	255 00	
		$678 00
Paid in premiums,.....		$616 00
Expenses, printing, &c.....		42 56

B. P. JOHNSON,
Cor. Sec'y.

Among the few statements returned, we find the following, which is appended, as the directions are simple, and appear very likely to accomplish the object aimed at, the making of good butter.

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In order to make good butter, every article used in its manufacture should be kept perfectly clean and sweet, by washing and scalding; the milk should be set in tin pans, (wooden keelers or tubs will probably yield the most cream, but not the sweetest,) in a comfortable temperature, and stand till it begins to turn; it should then be skimmed, and churned the same, or the next day, when the butter is separated from the milk as well as it can be in that state, and salted; it should be set away till the next day, and then be thoroughly worked over again. At this working, there should be a little more salt worked in, and also about three-fourths of an ounce of good loaf sugar to a pound of butter should also be incorporated completely with it, and then let it stand till the next day, when the working of it should be finished, and the butter made into balls.

This is uniformly our practice when we want to make a choice article.

J. F. GOODWIN.

Lairdsville, Oct. 20th, 1841.

NIAGARA COUNTY AGRICULTURAL SOCIETY.

To the Executive Committee of the
New-York State Agricultural Society.

In obedience to the provision, of the act passed May 5th 1841, "To promote agriculture," I present to your board the following abstract of the proceedings of the "Niagara County Agricultural Society," for the year 1841.

At a meeting held June 23, 1841, at the Court House in said county, pursuant to notice given by the clerk of said county, as required by the act aforesaid, an Agricultural Society was formed, a constitution was presented and adopted, and officers elected.

A meeting of the executive committee was held in July, 1841; and a list of premiums was agreed upon and published in pursuance of the provisions of said act.

At another meeting of the executive committee of said society, held October 12th, 1841, it was agreed that the annual fair should be held in the village of Lockport, October 23, 1841, and the several committees were then appointed to examine animals and productions, and award the premiums.

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On the 23d of October, 1841, the society held its annual fair, and elected the officers, as provided by its constitution for the coming year.

At said annual meeting, premiums were awarded to the amount of one hundred and eighty-five dollars.

WILLIAM A. TOWNSEND, *President.*

The first premium on corn, was taken by J. M. Middleton, for a crop of 106 bushels, 44 pounds to the acre; and to the same individual, for the best crop of oats, which was 92½ bushels per acre.

Mr. Newhall, who received a premium on a corn crop, has furnished the following statement:

The land on which my corn was raised, was oat stubble, soil sandy, and ploughed once. Spread on fourteen loads of straw manure to the acre. Furrowed it out three and a half feet apart, rows running north and south. Manured in the hill, with eight good loads of rotten manure; planted the corn in the rows 3 feet apart, and hoed well 3 times. Cut up the corn when it was well glazed, and stooked it in the field; let it stand about four weeks, then measured one acre exact, and husked it by itself; I had ninety-one baskets. We shelled two of these as nigh the average as possible, which gave for the acre 71 bushels and 3 quarts. Not less than six hundred pumpkins grew on this same acre with the corn.

WASHINGTON COUNTY AGRICULTURAL SOCIETY.

The Washington County Agricultural Society was organized at Argyle, on the 4th day of August, 1841, a constitution adopted, and officers of the society elected.

The fair was held at Union Village, on the 12th of October, and notwithstanding the limited period of the society's existence, a handsome list of premiums was awarded.

One hundred and thirty-nine persons became members of the society previous to the day of the fair, and the whole amount to which the society was entitled ($123) was received from the State treasury. $206 have been paid out in premiums, advertising, &c. leaving in the treasury of the society a balance of $56. Since the fair, this amount has been increased by an addition of 52 new members, to $108.

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The following report of the committee on agriculture will show to whom the several premiums on crops were awarded.

1. The committee on crops report, that Job Eldridge of Easton, is entitled to the first premium on one acre of corn; having raised 122 baskets on an acre, the basket holding $1\frac{1}{2}$ bushels strict measure.

2. That Amos Eggleston, is entitled to the second premium, having raised $62\frac{3}{4}$ bushels per acre.

3. That Amos Eggleston, is entitled to the first premium on oats, having raised $48\frac{1}{3}$ bushels per acre.

4. Peleg Sherman is entitled to the first premium on potatoes, yield per acre $806\frac{3}{4}$ bushels.*

5. That Phineas B. Wheldon is entitled to the first premium on peas, yield 30 bushels per acre.

6. That John A. McNeal is entitled to the first premium on wheat, yield 29 bushels per acre.

7. That Alanson Cherry is entitled to the second premium on wheat, yield $21\frac{1}{3}$ bushels per acre.

8. That Calvin Skinner is entitled to the first premium on flax, 300 lbs. of lint, 12 bushels seed per acre.

LYMAN WOODWARD,
Chairman of Committee.

JEFFERSON COUNTY AGRICULTURAL SOCIETY.

From this society has been received an account of the formation of the society; a list of the premiums awarded; and the report of the viewing committee. No premiums were awarded on crops or fat cattle. The following is the statement of the funds of the society:

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* We give here Mr. Sherman's account of his potatoe crop, as an instance of the very loose manner, in which premiums are sometimes awarded.

"The potatoes were planted about the middle of June, potatoes cut, and two pieces, one eye each, generally put in a hill. Year before last the ground was oat stubble, and seeded down and manured in the common way, ploughed once, hoed twice, plastered in the hill when planted, and no other time. The potatoes were French pinkeyes, and Leopards, and planted 3 feet apart; calculated 6 hills for a bushel, making $806\frac{3}{4}$ bushels.

"I certify the above to be correct,

PELEG SHERMAN."

We of course do not assert that Mr. S. did not raise 800 bushels per acre, only that there is not sufficient evidence of the fact. On this point we make the following extract from the report of the secretary of the society, and have no doubt that another year when more time can be allowed for the committee to learn their duties, that such mistakes in management will not occur:

"Upon no other point do we feel as much chagrin, as upon the premium that was awarded to Mr. Sherman for his crop of potatoes; and it is perfectly unaccountable to us, how the highly intelligent and respectable committee of practical farmers, which we had selected on agricultural products, came to give credit to his statement, especially as it was unattested by his oath."

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Cash received from the State,		$188 00
Individual subscriptions,		425 70
		$608 70
Paid in premiums,	$385 00	
Incidental expenses,	53 01	
		438 01
Cash on hand,		$170 69

The fair was held at Watertown, on the 16th of September.

We append the report of the viewing committee on farms, as this subject is one well worthy the attention of all such associations.

Report of Viewing Committee.

The viewing committee in the discharge of the duties assigned them, visited twelve towns of the county, having travelled upward of two hundred miles in the course of their tour.

We inspected twenty-two farms, eighteen dairies, and have to regret that the premiums in our power to bestow, are not in larger proportion to the farms and dairies visited. We trust that our society may be so patronised by a greater number of our farmers, that the list of premiums may be increased. It is the unanimous opinion of the committee, that the premium should hereafter be given for the best farm in each town. The county is so large, that many owners of fine farms are restrained from offering them for premiums, from a supposition, that in other parts of the county with which they are not familiar, farms may be in a better state of cultivation. By awarding a premium for the first farm in the town, a spirit of emulation would be excited, which could not fail to be attended with the best results.

Some of us, in the days of our former society, have been at different times, on the same committee. We can distinguish a most gratifying improvement throughout the county. The primitive dwellings of earlier times, in the older portions of the county, have almost wholly disappeared. Their place is supplied either by very excellent stone and brick houses, or framed houses of neat construction, in many instances inlaid with brick. In connection with this subject, the committee have to regret that less attention is paid to ornamenting the front

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yards of these new houses with shade trees and shrubbery, than they deserve. Attention paid to these interesting objects, is labor well applied. The trees afford a grateful shade from the summer heats, render the houses much cooler and add greatly to the beauty of the county. A farmer on the Copenhagen road in the town of Champion, has shown not only good sense, but good taste, in this respect, and is deserving of imitation.

In various sections, but north of the Black river particularly, we observed a great deal of land sowing to wheat. We never saw fallows in finer condition. Among the gratifying improvements every where observable in our husbandry, the renewed attention now paid to manuring the fallows is very conspicuous. In the first settlement of the county, good crops were raised without manure; but the generality of our lands demand it. Diligent attention paid to accumulating heaps of compost for our fallows, can alone ensure us a reasonable prospect of a profitable crop. Whether lime can not be used to as great advantage, as in some of the older States remains to be seen. To our knowledge the experiment has not, as yet been fairly tried. There is a common opinion among farmers that our lands bottomed as they mostly are, upon lime stone, already contain lime enough. But it was stated in an address delivered by Mr. Le Ray to the former Agricultural Society of this county, that a chemical analysis of these lands only revealed five per cent of lime; an amount altogether too small to be attended with the beneficial results a larger addition of lime is known to produce. In that part of Pennsylvania lying around the city of Philadelphia, the soil requires from thirty to sixty bushels of lime for every acre of their fallow land. In this way good crops of wheat are raised there, and in no part of the United States are lands better sustained.

In our journey through the county, we could not fail to observe the great difference between the north and the south side of the river in respect to orchards. While in that part of the county south of the river, orchards are abundant, the country north is very deficient. We saw enough however to convince us, that with proper attention, the common prejudice that apple trees will not flourish well north of the Black river is erroneous. We passed some as fine orchards in this section, as are to be found in any other parts of the county. The sub-soil in some places may be, and perhaps is, adverse to the growth of the apple, but this does not apply to the north part of the county generally; it is confined to small spots, and even these may be improved by culture. In a small

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circle about the village of Brownville, plantation after plantation of apples have wholly failed, while on the hills immediately round, they flourish as well as can be desired. This perhaps, may convince those who have tried them on one part of their farm and failed there, that the experiment is well worth repeating on some other part of the farm.

Great improvement has taken place in fencing. Some farms that we visited are almost wholly fenced with straight post and board fence, thus making a great saving of land, as well as a permanent and handsome barrier. On farms where posts will not stand in consequence of the frost heaving the soil, or where posts and boards are too expensive, the old method of staking is giving way among all the good farmers, to stakes planted down straight connected by a yoke. With stakes of this description, the land can be ploughed up close to the corners of the fence, and while the land thus saved is fully one-half, the stakes are much less liable to be thrown by the frost.

As intimately connected with the agriculture of a country, the roads are deserving of careful attention, not only for the convenience of neighborhoods, but for the facility they afford in the transportation of our products. We found the roads perfectly good; though much of this is owing doubtless, to the dry season, yet in turnpiking and bridges there is a gradual improvement. In the town of Alexandria, the newest in the county, we found the roads fully equal to those in the oldest town. Now that the farmers of the county are able to ride in their own carriages, it is to be hoped that all we have so long endured from our bad roads may be removed.

The in gathering of the precious products which richly reward the patient labors of the husbandman had mostly been effected before we set out. A large portion of the county has suffered to a degree heretofore unknown, by the drought; in the early part of the season it was seriously apprehended that our crops would fail, but that merciful Providence who provides for the wants of men, though he withheld the rain, sent the fertilizing dews. With the exception of the hay, our other crops are generally good. In the towns of Rodman, Rutland and Champion, the want of rain has not been felt. The grass in other portions of the country was dried up, not having started since the hay was cut, while in these towns it was perfectly verdant, and in some places we observed the cutting of a second crop. Fruit of all kinds raised among us was never more abundant.

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We saw less of that pest of our farms, the Canada thistle, than has heretofore been observed. Our good farmers have learned to exterminate them by thorough ploughing and mowing. It is the duty of the path-master to have these cut from the roads, but surely no good farmer would allow them to remain on roads passing through his farm, even should the overseer neglect his duty, which is manifestly the case in some places.

One great error in our farming, observed by us as well as others, is in having too large farms. Except for grazing, it is questionable whether a farm ought to exceed one hundred acres; and one half of this may be considered ample for a farmer who has not a family of boys to assist him. It is a fact often spoken of in the older portions of the State, that after the paternal farm has been divided among the children, as much is raised from the parts by increased attention to manuring and cropping, as was formerly raised from the whole. It is very certain that a small farm adjoining the village of Watertown, of about forty acres, is, by thorough culture and undivided attention to that small number of acres, made more profitable to its owner, Hart Massey, Esq., than some farms in the county of three times the size. It is thought by us that the owners of large farms, rather than assist their sons in the purchase of other farms, would better consult the interest of the whole family by dividing their own among them. Besides the happiness of having their family around them, ready at all times to assist each other, and having the daily benefit of their father's experience, the original land would be placed in a far higher state of cultivation, to the mutual benefit of all.

The raising of silk worms and the manufacture of silk, is, as we learn, in very successful operation in Carthage. We had not an opportunity of visiting the cocoonry there, and refer to the subject that public attention may be drawn to it. It is said that the small children of the family can be employed in this occupation to great profit.

The cheap agricultural papers now published in this State places them within the reach of every one. Some are pleased to term the study of agricultural journals and the practice of what is there learned as mere book farming. Good husbandry is too much of a science to be treated with such captiousness. If we remain wholly dependent upon our own experiments, life will close upon us before we have half

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learned our art. All other sciences are teeming with new experiments, and the results published in their respective journals are eagerly sought for by those engaged in such pursuits, while the periodicals devoted to agriculture are surprisingly neglected by those who are practising this branch of industry.

We learn from the publishers that only sixty-eight copies of the Cultivator, and ninety-two copies of the Genesee Farmer, are subscribed for in this county. In this large agricultural county, so few numbers of those invaluable journals subscribed for, is surely an indifference to the science of agriculture which we ought not to exhibit. Were we more animated to obtain the greatest possible results in the best possible manner, we could not fail to be more desirous for information on all branches of husbandry which are constantly brought to our notice in the journals referred to. We earnestly recommend them to the attention of more of our farmers.

We regret that in the towns of Adams and Ellisburgh greater interest has not been manifested in our society. No applications for premiums were received from those towns, and but one from Henderson. Though our labors occupied us seven full days, we would cheerfully have gone into that fertile part of the county, had we been advised to do so.

There were but four premiums advertised for cheese dairies, but the executive committee have authorized us to add three more. The twelve cheese dairies we visited milked in all three hundred and fifty-four cows. We counted the number of cheeses made, and one of the committee being an experienced cheese purchaser, estimated the weight. By adding to the gross amount already made one third for the remainder of the season, we find that each cow will have made 309 pounds of cheese. At six cents per pound this brings the earnings of each cow to eighteen dollars and fifty-four cents for the year.

The six butter dairies offered to our inspection milked one hundred and eight cows; adding one third to the amount now made, they will average one hundred and twelve pounds each; this, at fourteen cents per pound, is equal to fifteen dollars and sixty cents; a difference in favor of the cheese dairies of two dollars and eighty-six cents to each cow.

A short account of the farms to which we have awarded premiums, will close this report. It is proper to state that the committee offered

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no farms or dairies of their own, for premiums. We think the welfare of the society, requires that no member of any committee should apply for a premium on the subject which comes under their award. Our aim has been to distribute the premiums through the county as much as practicable, that is, not to give two premiums on a farm or dairy, to the same town, when a farm or dairy in some other town was equal to one of them.

We have also, preferred to give to practical farmers, and especially to those who by their industry and economy paid for their own farms, and brought them, with their own hands, to their present state of cultivation.

The farm to which the first premium is given, contains about one hundred acres of improved land. The present occupant has been on it thirty-three years; he originally took up but forty acres, and having paid for that, has been gradually adding to it. It is a grazing farm, and in a high state of cultivation, not a weed or a thistle to be seen upon it. There is, on this farm 550 rods of cedar post and board fence. The owner has a family of sons settled around him, alike distinguished for their good farming.

The second premium has been given to a farm of 160 acres, 80 of which are improved. The owner has on it, 700 rods of handsome stone wall, nearly every rod of which was laid by himself. It has a fine orchard, and is in all respects in the most farmerlike condition. The committee hesitated to which of these farms to give the first premium. This also, is a grazing farm, and was brought to its present high state of cultivation, by its present occupant, who has been on it seventeen years.

The third premium is awarded to a farm in the town of Alexandria. This farm is an example of what can be accomplished in few years of patient industry. It contains 200 acres, of which 150 are improved. It is mostly a grain farm in a high state of cultivation, free of weeds and thistles, and has been cleared by the present occupant within the last nine years. There are on it 1000 rods of black ash fence.

No. 4, 5, 6, and 7, are all in a high state of tillage, with first rate buildings. No. 5 particularly is as fine a farm in all respects as the county affords. There is on it, 750 rods cedar post and board fence and 350 rods staked with perpendicular stakes.

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No. 8, when bought by the present owner, was in the worst possible state. It was covered by fallen pines, and a growth of hemlock, and was considered cold, unfruitful land. After clearing, it was brought to by ditching and good culture, and is now an ornament to the neighbor hood. The barns and barn yard on this farm deserve particular praise.

No. 9 and 10, have on them very fine dwellings and out buildings, and have been cleared and tilled by the present owners.

Since writing the above report, we have been authorized by the executive committee to bestow a premium to a gentleman in the town of Rutland, for his admirable dairy house. We recommend our dairymen to take pattern by the convenient and labor saving arrangements which are here exhibited.

JOHN E. BROWN,
ABNER BAKER, JR.
JASON CLARK,
ALBERT REDWAY,
EDWARD S. MASSEY,
GEO. WEBB,
JOHN A. SHERMAN.

ONONDAGA AGRICULTURAL SOCIETY.

The following is the report of the committee on farms and farm crops received from this society:

The committee would respectfully report, that the number of farms which they were called to examine was small compared with the number which will probably hereafter be offered in this county, when the attention of the farming community shall have become more awakened to the subject of agricultural improvement.

Your committee were first invited to examine the farm of Silas Gaylord, which is beautifully situated on the west bank of Skaneateles lake, and about four miles south of the village. This farm contains 145 acres, 25 of which are covered with wood. The 120 acres are all arable land, and suitably divided into fields, on which is pursued a course of crops. A large share of the western part of this farm was formerly so wet as to be unfit for tillage. This Mr. Gaylord has very properly reclaimed by underdraining, which is a very profitable opera-

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tion on lands which are so moist as to be otherwise untillable. Twelve hundred rods of stone underdrain are already constructed on this farm. The buildings are well located and in good repair. The outbuildings are extensive and convenient, especially the barn, which is very large, with cellar, shed or stabling, under the whole of it. This your committee believe is a great improvement, as it requires no additional roof, and furnishes a place where stock can be kept comfortable in the most inclement weather; a convenient cellar for the preservation of roots, and a place for preserving manure from the great waste attendant on exposing it to the storms of winter and spring.

The farming tools are in good order, under cover and ready for use. The fences mostly in good order, and a large share made of posts and boards. The fields are generally in good order, and few weeds are allowed to perfect their seeds. All vacancies in the timber land are filled by transplanting locust trees, which are taken from a nursery on the farm. By thus keeping the locust tree shaded, Mr. Gaylord thinks he shall avoid the depredations of the borer. The stock on this farm consists of 38 neat cattle, all of which are full blood or grade Durham, 4 horses, 15 hogs, and 74 sheep, of the improved English varieties. The division of the farm the present year, with the quantity of crops is as follows:

Wheat, 18 acres, 400 bushels.
Barley, 10 do 300 do
Peas, 5 do 100 do
Oats, 5 do 200 do
Potatoes, 2 do 320 do
Corn, 5 acres, much injured by wire worm.
Meadow, 30 acres, 60 tons.
Pasture, 45 do

The farm of Mr. Gaylord exhibits the practical good sense and untiring industry of its owner, and is well worthy of a visit from those who are designing to raise stock, or erect the out buildings which are necessary on a stock farm.

Your committee were next called to view the farm of Fletcher Woodward, situated on the turnpike, five and a half miles west of Syracuse. This farm contains 236 acres, 225 of which are under improvement; all tillable, and in a high state of cultivation. This farm is naturally adapted to the raising of grain, and to this Mr. Woodward

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gives most attention. The course of crops which is produced is: 1st, corn or potatoes, on a clover lay, then oats or barley, which are followed by wheat, after one and sometimes two ploughings; then sows eight quarts of clover seed, two quarts of timothy seed, and three to four bushels of plaster per acre on the wheat, early in the spring, and pastures one year after the wheat is harvested. Mr. Woodward sows from one and a fourth to two bushels of wheat per acre, according to the time of sowing; prefers sowing from 10th to 15th September. Never sows grass seed with any crop but wheat; general average of wheat crop per acre, from 20 to 27 bushels; has raised 48 bushels per acre on small pieces. Corn is invariably raised on green sward, with one ploughing, harrowed down smooth, and struck out both ways; rows north and south, 3 feet 4 inches east and west, 2 feet 8 inches apart. Plants early in May, with plenty of seed, coated with tar, and thins at hoeing to 4 stalks in hill; plasters as soon as up, and again after second hoeing; uses the cultivator, hoes 3 times, and makes very little hill.

Barley is generally sown on pasture land with one ploughing; general crop 30 to 58 bushels per acre; sows from 2 to 2½ bushels per acre; oats are cultivated after corn; sows 2½ to 3 bushels per acre; general crop 50 to 80 bushels per acre.

Mr. Woodward's method of cultivating potatoes is to draw at the time of threshing wheat, (with a pair of horses and rope,) the straw, and deposit it in large bunches on a clover lay, leaving a narrow strip all around the field, on which no straw is put. In the spring this narrow strip is ploughed and harrowed fine; then drops the seed once in two feet each way; covers about one inch deep, and keeps the surface as near level as possible. He then takes the straw adjoining this circle, around the field, and deposits it evenly on the ground already planted, to the depth of about 4 inches, when settled together. This leaves another strip for ploughing, which is treated in the same manner as the first, and so on, until the crop is ready to harvest, which is usually from 300 to 500 bushels per acre. This farm is divided into fields of the average size of 23 acres. The fence consists of 963 rods of posts and boards, 215 rods of full wall, and 180 rods of half wall, all in good order. For the convenience of passing these fences, 33 gates are already hung, and the committee were informed by Mr. Woodward that he had contracted for 22 additional gates to be erected this fall. The quantity of produce raised on this farm the present season is as follows:

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Wheat,	88 acres,	1760 bushels.	
Corn,	20 do	1460 do.	
Oats,	33 do	1320 do.	injured by drought.
Barley,	25 acres,	750 bushels.	
Potatoes,	5 do	1500 do.	
Meadow,	10 do	20 tons.	
Pasture,	47 do.		

The stock kept on the farm consists of 12 horses, 28 neat cattle, 83 hogs, and 150 sheep.

Mr. Woodward has given a practical illustration of the fallacy of the idea which is so often advanced, that the farmer cannot afford to be nice in his farming operations, and that the profits will not pay for an outlay of extra capital in improving the soil and fence. One of the committee asked Mr. Woodward if he took an agricultural paper, to which he replied—"I do, and have for a number of years, and have found it of great use. And could I have had the Cultivator, with the present light upon the subject of farming, when I first commenced, (18 years since,) I think it would have been more than $1000 benefit to me."

The farm of Mr. Woodward exhibits in a favorable manner the beneficial effects of what is denominated the new system of husbandry. The antiquated customs of farming which our forefathers followed, are not so dear to him as to cause him to shut his eyes to the improvements which modern agriculturists are annually making in the science of farming. He is not so fearful of being called a "book farmer" as to refuse to take and read the agricultural publications of the day. He is not so fearful of being denominated a theorist as to refuse to try the improvements which are recommended in those publications; and his farm shows the consequence; it being well fenced, well cultivated, very productive, and very clear from weeds, none of which are suffered to seed. In short, everything shows that the operations on this farm are directed by an enterprising, intelligent, practical farmer.

Your committee were next called to examine the farm of Hiram Church, situated in the town of De Witt, 2½ miles northeasterly from Syracuse.

This farm contains 137 acres, about 100 of which are under improvement, and all suitable for tillage. It is divided by a good cedar

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fence into fields containing about 10 or 12 acres each. The produce of this farm the present year is,

30 acres wheat, 679 bushels.
4 do corn, 200 do
6 do oats, 360 do
3 do peas, 75 do
1 acre potatoes, 150 bushels.
12 acres meadow, 24 tons hay.
22 do pastured.
22 do summer fallow.

Mr. Church prepares his ground for wheat mostly by summer fallowing, ploughing three times. His method of raising corn is much like that pursued by Mr. Woodward, except Mr. Church uses a small plough instead of a cultivator; consequently he makes some hill around the corn.

The stock kept on this farm consists of 9 neat cattle, 7 horses, 10 hogs, and 60 sheep. Mr. Church makes liberal use of clover seed and plaster, and this practice your committee would earnestly recommend to every farmer.

The farm of Mr. Church, is newly improved, compared with the farms of Mr. Gaylord and Mr. Woodward; but is naturally choice grain land; and we doubt not, with the industry and enterprise which Mr. Church exhibits, it will soon show such a degree of neatness, and amount of produce as few, if any, farms can now exhibit.

Your committee also examined a field of corn containing nine acres, cultivated by H. Fancher, on the farm of Fletcher Woodward, and in the same manner as reported by Mr. Woodward. It was well cultivated, and would yield more corn per acre than any other field on the farm of Mr. Woodward.

Royal White, of Onondaga, called the attention of the committee to a field of wheat, containing four acres and fifty-two rods, which Mr. White informed us yielded 167 bushels of wheat. Method of cultivation—broke up about the middle of June, about ten inches deep, and immediately harrowed. Ploughed and harrowed again the fore part of August. Ploughed and harrowed the third time the 10th of September, and immediately sowed with seven bushels of Canada flint and white

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flint wheat. Three-fourths of an acre of this piece of land was sowed with peas, and was ploughed but twice.

Col. W. Abbott, of Otisco, presented a fine sample of spring wheat which he originated by a series of experiments from the bald flint, which is a well known variety of winter wheat. For an account of his experiments we would refer to page 138 of volume 9 of the old Genesee Farmer.

The committee would here state the quantity of produce which is given in this report, is in part given from ascertained facts and partly from estimates which the committee believe to approximate near to correctness.

The committee recommend that the first premium on farms be given to Fletcher Woodward. The second to Silas Gaylord, and the third to Hiram Church.

They also recommend that premiums be awarded to H. Fancher, Royal White and Warner Abbott.

The committee would further remark, that they have had a pleasant duty assigned them, and they regret that the number of competitors was not greater.

The committee would also return their thanks to the different competitors for the kindness and hospitality with which they have been treated.

All of which is respectfully submitted.

ENOCH MARKS,
WILLIAM FULLER,
Committee.

Syracuse, September 29, 1841.

In closing this brief notice of the returns from the county societies, the Executive Committee deem it their duty to make a few remarks on the manner in which this part of the duty of the societies has been performed. It was unquestionably the intention of the Legislature, when they passed the act for the promotion of agriculture, and devoted a part of the funds of the State to that object, that the money so distributed, should be applied in the way best calculated to benefit the agriculture of the State. To do this, it was not deemed enough that agricultural fairs should be held, and the money expended in premiums, but pro-

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vision was expressly made for giving the greatest publicity to the modes of agriculture adopted, or the different processes pursued, by the successful applicants for premiums. No premium was to be awarded, until the statements referred to, had been made, as without the knowledge that could be gained in this way, one half of the advantages to agriculture, proposed by the State in its appropriation of funds, would be wholly lost. *All* such statements, reports, vouchers, &c. made to the several county societies, were to be transmitted to the Executive Committee of the State Agricultural Society, whose duty it would be to select, compare, condense, and arrange into a report to the Secretary of State, such papers, statements, &c. as should be deemed best adapted to subserve the cause of agriculture in the State. The Executive Committee regret to say, that in too many instances, these requisitions of the law appear to have been entirely overlooked; and that where partial returns have been attempted, they have in most cases, been very meagre and unsatisfactory, barely an approximation to the returns contemplated by the provisions of the act. That some errors in management should be incident to the organization and action of many societies, in a time so limited, was what was to be expected; still, where previous organizations existed, there does not seem sufficient necessity, when the plainness of the provisions of the law are considered, and the ease of fulfilment, for the general failure in compliance.

There can be little doubt, however, that the experience of the first year will afford the means of avoiding such errors in the future. The methods of making out the required statements, will be better understood; the necessity and utility of the plan, more fully appreciated; and the requirements of the law more generally known and acted upon. The Executive Committee would suggest to the county societies, that in making out and circulating their lists of premiums, they copy the 3d section of the law, as that will bring its requisitions more clearly to the notice of those who are intending to become competitors. It cannot be too strongly impressed on all connected with these societies, that the State expects from those who receive the benefit of the appropriations, a prompt compliance with the law, as in that way, and that only, can the full benefits expected be realized.

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IV. REPORT OF THE CORRESPONDING SECRETARY.

At a meeting of the Executive Committee at Troy, in July, Mr. Tucker introduced the following resolutions, which were unanimously adopted:

1. *Resolved*, That the Corresponding Secretary be authorized and requested to open correspondence with such individuals as he may deem proper, in the several counties of our State, for the purpose of eliciting information on the following points:

The present condition of agriculture in each county, with such changes as have already taken place since the period of their first settlement—Aspect of the county—Nature of the soil—What are the principal products?—Where are the products marketed?—What kinds of cultivation are in use?—What are the favorite breeds of horses, cattle, sheep, swine, &c.?—How are the stock generally fattened for market?—What ploughs, harrows, and other agricultural implements are in general use?—What is the general value of the land?—What kind of timber generally prevails?—What agricultural changes are requisite to advance the prosperity of the county?

2. *Resolved*, That the Corresponding Secretary be authorized and requested to open correspondence with such individuals as he may deem proper, for the purpose of eliciting information on

The most profitable breeds of cattle, sheep, horses, swine, &c., for our country—The best and most economical method of rearing them—Their diseases, and the method of treating them—The most profitable varieties and best method of cultivating the several varieties of grains and roots—The best and most profitable method of making butter and cheese—The most economical method of fattening domestic animals—The best and most economical method of wintering domestic animals—The cultivation of fruits—Horticulture—The most profitable grasses—Draining—Rotation in crops—Manures—Diseases of plants, and the remedies—Destruction of noxious weeds, &c.—Construction and management of farms, out buildings, yards, &c.—Fences.

3. *Resolved*, That the Corresponding Secretary be authorized and requested to open correspondence with such individuals as he may deem proper, in the United States and Europe, for the purpose of elici-

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ting information on such agricultural subjects as may be of value to the farmers of our State.

Of the valuable results which have flowed from this measure, the following report of the corresponding secretary will be the most satisfactory evidence.

January 19th, 1842.

JOEL B. NOTT, Esq. *President of the New-York State Agricultural Society.*

SIR:

I have the honor to transmit herewith to the Executive Board of the Society, the annual report of the corresponding secretary, with the accompanying documents.

Very respectfully,
Your ob't servant,
HENRY S. RANDALL,
Corresponding Secretary.

The corresponding secretary of the New-York State Agricultural Society, would respectfully

REPORT:

The undersigned, on entering upon the duties of his office, early sought an expression of the Executive Board, in relation to the nature and extent of the correspondence to be opened by him, which they should deem best calculated to promote the interests of the Society, and of the agriculture of the State at large. The board accordingly, at their meeting in June, 1841, passed resolutions authorizing and requesting the corresponding secretary to open correspondence with such individuals as he might deem proper in this and other States and foreign nations, for the purpose of collecting agricultural statistics, and other information of value to the farmers of our State.

Acting under the above resolutions, the undersigned believed it a matter of primary importance, to obtain from the best sources within his reach, accurate descriptions of the agricultural resources, natural and artificial, of the several counties of our State, together with their prevailing systems of husbandry, and required improvements. These descriptions, he thought it desirable, should assimilate as near as might be, to the character of agricultural surveys. Inquiries, therefore, the

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answers to which would contain all the information ordinarily embraced in regular surveys, were drawn up and addressed to presidents of county societies, whose names and address were known to the undersigned, and to various other eminent agriculturists throughout the State.

Much was not perhaps to be expected from a first effort of this kind. Too many, it is to be feared, did not fully appreciate the importance of the undertaking; and others, immersed in their own business, and unaccustomed to a labor of this description, lacked time, and in some instances, confidence to make the effort. Reports, more or less elaborate, have been received from Cayuga, Cortland, Dutchess, Herkimer, Madison, Ontario, Putnam, Queens and Washington, which are hereunto appended, and which will be found to combine a mass of interesting and important information in relation to the counties of which they treat.

The undersigned cannot but express the hope that should the same, or a similar series of inquiries be prosecuted by the corresponding officer of the Society, during the coming year, they will meet with the attention which their importance demands, and secure the effort necessary to a proper disposition of them. Every high minded and patriotic agriculturist should feel that he is bound to labor thus much for the common weal—to contribute the results of his own observation and experience for the benefit of the common whole; and he whose hand is more familiar with the plough than the pen, will recollect that it is facts and things, rather than words, sought after by the Society.

Inquiries similar in their object to those alluded to above, but more general in their character, have in some instances been addressed by the undersigned to individuals residing in other States of the Union, and in other nations; and he has only to regret that the great extent of his official correspondence, in connection with matters more exclusively of a business character, consequent on the first workings of a new organization, has prevented him from prosecuting this branch of his labors still further. Within the borders of our own republic especially, should the agricultural knowledge, like that on all other subjects possessed by one, become to the greatest practicable extent, the common property of all. However superior the systems of one State may be to those of another, it is rarely the case that something cannot be learned, even from those whose agricultural condition is the most depressed. They at all events furnish the warning of a negative exam-

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ple. And a thorough knowledge of the agricultural statistics of the several States, while it points the agricultural capitalist to profitable sources of investment, and to every one engaged in husbandry, the most lucrative branches of his occupation, as well as the most desirable situations for him to occupy, would tend strongly to regulate supply and demand between the producer and consumer, and thus prevent those ruinous reverses, which, in the agricultural as in the commercial world, follow their want of adaptation to each other.

The same remarks will apply, in part, with equal force, to an interchange of agricultural knowledge with foreign nations. Although radical differences must always exist between our systems of husbandry and those of most of the European nations, so long as land and labor bear so opposite a relation to each other in the old and new world, there is little doubt we have much to learn from countries whose agricultural systems are the results of such continuous care and experimental skill as those of Great Britain and the Netherlands, or more particularly in that portion of the latter, embraced in the new kingdom of Belgium. To deny it, is to decide that experience brings no knowledge, and that the accumulated wisdom of ages is valueless.

Communications in relation to their general systems of agriculture, have been received from individuals residing in South Carolina, Pennsylvania, and Virginia, and are hereunto appended. A valuable paper of the same kind has been received from England; and to inquiries and invitations to correspondence, directed to individuals residing in other countries, the undersigned takes pleasure in communicating the fact, that he has, in all cases where sufficient time has elapsed for answers to be returned, received the most gratifying assurances of a disposition to further and coöperate in the objects thus sought by the Society. From societies and individuals of other nations, similar inquiries and proffers of correspondence have been in some instances received; and perhaps no incident could more clearly mark the awakening spirit of the times in relation to agriculture, and the growing desire for the spread of agricultural information, than the fact that the undersigned has received, within the past week, a communication from the corresponding officer of an agricultural society in the Phillipine islands, situated in the remote Chinese seas, proffering correspondence, and asking an interchange of seeds, documents, &c.

In Belgium and France, which, next to Great Britain, present the most valuable fields of agricultural exploration, the undersigned regrets

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to say that he has not as yet opened any correspondence either with societies or individuals. He has made an effort, through His Excellency Gen. Cass, the American Minister to the latter country, to obtain the necessary facts for the proper prosecution of such an object; and he doubts not, in due time, the requisite information will be received.

Another class of inquiries, more special and limited in their scope, and usually confined to a single branch of agriculture, or a single branch of agricultural science, have been addressed by the undersigned to such individuals, residing in this and other States, as were supposed best qualified, from their experience, their observation, and their research, to communicate the desired information. Many highly valuable papers have been received, in answer to these inquiries, and others have been promised. It was the anxious wish of the undersigned, that the range of subjects thus treated should include all the most prominent topics of agricultural information; and notwithstanding this object has not been fully accomplished, enough has been done to thrice repay the effort, and to encourage its renewal.

The undersigned may be permitted to remark that he deems it one of the first objects of the State Society, to collect and disseminate information in relation to the most approved methods of conducting every process of husbandry, on the different soils, and under the varying circumstances which must necessarily exist on a territory so extensive and diversified as that of New-York. To note also the gradual changes and improvements which annually occur in its different sections, and to make them the property of the whole, is also an important branch of our duties. The unprejudiced observer who turns his eye back thirty, or even ten years, will perceive that changes of great magnitude have taken place. Nor has the skill of the husbandman yet reached its height. Science is daily placing new resources at his command, and pointing out to him potent and unsuspected agencies which, for the want of a proper knowledge of them, have lain dormant within the reach of his hand. Chemistry has consented to become his handmaid; and geology at his bidding unlocks the secrets of the earth. Mathematics has wandered from the schools to teach him to construct the utensils of his labor; and zoölogy has made known her laws, to enhance the value of the flocks and herds who feed and clothe him.

The agricultural periodicals of the day are doing much to disseminate and equalize, among our farming population, the light which is flowing in from so many quarters. It is the duty of the State Society

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to take the lead in this effort, and to stamp permanently on its archives every progressive step which attends the advance of agricultural science. In conclusion, the undersigned takes occasion to reiterate the hope already expressed by him, that the agriculturists of our State, if again called on to contribute their assistance to an undertaking of this kind, will evince as much zeal as they possess ability for the task.

The accompanying schedule contains a list of the papers in the hands of the corresponding secretary, designed for publication.

Respectfully submitted.

HENRY S. RANDALL,
Corresponding Secretary of the New-York State Agricultural Society

SCHEDULE

Of papers in the hands of the Corresponding Secretary, designed for publication.

Agriculture of	Cayuga county,	by U. F. Doubleday.
do	do	" Ira Hopkins.
do	Cortland,	" Jesse Ives.
do	Dutchess,	" Henry Staats.
do	Herkimer,	" Aaron Petrie.
do	Madison,	" Alex. Krumbhaar.
do	do	" Thomas Mellen.
do	Ontario,	" Z. Barton Stout.
do	Putnam,	" Leonard Clift.
do	Queens,	" Albert G. Carll.
do	Saratoga,	" Howell Gardner.
do	Washington,	" Ahira Eldridge.
do	South Carolina,	" Hon. Joel R. Poinsett.
do	Pennsylvania,	" Wm. Penn Kinzer.
do	Virginia,	" James M. Garnett.
do	England,	" John Hannam.
On Tillage,		" Willis Gaylord.
" the Fruit Garden,		" David Thomas.
" Increase and Prospects of Silk Culture in the United States,		" Gideon B. Smith.
" Culture and best variety of the Mulberry,		by Daniel Stebbins.
" the different Breeds of Cattle: the most profitable Breeds,		" Henry S. Randall.

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On the points by which Cattle should be judged—the best breed,..... " Heman Chapin.
" Cattle—Sheep—Root Culture,... " Daniel S. Curtiss.
" Geology, as connected with Agriculture, ... Willis Gaylord.
" Charcoal as a Manure, ... " John H. Hepburn.
" Wintering Horses,..... " Ezra Meech.
" the most profitable breed of Horses, " William B. Ludlow.
" History of Sheep,..... " Henry S. Randall.
" Merinos and Saxons,..... " William Jarvis.
" the Saxon Sheep—its value compared with the Merino, and with the English breeds,..... " Henry D. Grove.
" the Paular Merino, ... " S. W. Jewett.
" Management of Sheep, ... " L. A. Morrell.
" the Construction of Fences,..... " H. S. Morse.
" the Culture of Hemp, ... " Joseph Sawyer.
" the Introduction of Italian Wheat into the United States, ... " Jay Hathaway.
" Domestic Poultry,..... " C. N. Bement.
" Feeding Swine, with Suggestions as to the best breed,..... " B. P. Johnson.
" the Grape,..... " L. B. Langworthy.
Letter from Samuel Lawrence, Esq.

AGRICULTURE OF CAYUGA COUNTY.

To HENRY S. RANDALL, ESQ.,
Sec'y of the N. Y. State Agricultural Society.

DEAR SIR:—I duly received your circular of the 20th October ult., asking information in regard to several subjects connected with the agricultural condition of the county of Cayuga. As I have been engaged but a short time in my present occupation, and have been much confined to my own farm, I shall attempt to answer but a part of your queries, leaving the residue for others, who may be better informed and more experienced.

Improvements.

The principal improvements in this county since its settlement consist in draining, manuring, and the use of clover and plaster as a pre-

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paration for wheat. Probably one-half of our fields require more or less draining to fit them for profitable cultivation. Our most intelligent and thrifty farmers pay much attention to this subject. They generally drain each field sufficiently, before breaking up for wheat or corn. It is believed the increased product pays the expense in two or three years. Good farmers draw out their manure every year. It is commonly applied to the wheat crop. The most approved method is to heap it in the spring, pitch it over once or twice, to produce heat, in order to destroy the seeds of noxious plants; draw it out in the fall, spread it on the land before sowing, and harrow it in with the seed. On dry clean land, this method will generally produce a yield of from 25 to 40 bushels to the acre, besides putting the land in good condition for succeeding crops. But few acres, however, can be prepared in this manner.

The beneficial effects of plaster consist chiefly in producing a large growth of clover. If this be suffered to fall, or be trampled down by cattle after it has attained its full growth, the land will be much enriched thereby, and provided it be otherwise in good condition, will generally produce a large crop of wheat.

Many farmers apply what manure they can spare, to their corn ground. When green sward is used for corn, especially on clay or stiff loam, the land ought to receive a dressing of about 30 loads to the acre, of unfermented manure, in order to cause a rapid decomposition of the sod, produce heat, and mellow and enrich the soil. This method, with suitable after culture, will generally produce a large yield, and leave the land in good condition for an after crop of wheat. Many manure their wheat lands, as before stated, plough the stubble ground for corn, and obtain excellent crops.

Aspect of the County.

The south-east part of the county is considerably elevated and hilly. The north and west is mostly level or undulating. From the Cayuga lake, there is a gradual rise to the hills on the west side of the Owasco lake, and up the Owasco outlet. These hills are probably about 2000 feet above the level of tide water. Their elevation diminishes towards the foot of the lake. On the east side, the land is mostly elevated and hilly to the county line.

Nature of the Soil.

The soil is generally a dry loam. The west, central, and part of the northern and southern sections contain considerable limestone. A part of

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the northern section is sandy, with little lime. The hilly parts before mentioned, are nearly destitute of it.

Principal Products.

The principal products of the calcareous parts of the county are, wheat and wool. Considerable quantities of pork and beef are also sent to market; the larger portions from such parts of the county as are deficient in lime, and therefore not adapted to the culture of wheat.

Products are *marketed* at Weedsport, Centreville, Port Bryon and Montezuma, on the canal; at Union Springs, Levanna, Aurora, and some other places on the Cayuga lake. A portion of our products are sent to Canada, others to New-York, by way of the grand canal.

"What kinds of *cultivation* are in use?" For wheat, naked summer fallows on swarded land, are generally used by our best farmers. In most parts of this county, the crop ought to be sown as early as the 1st of September, and the land should be clean and rich. Corn exhausts the land, and cannot usually be taken from the ground in season for sowing. The first objection exists against sowing after spring wheat, oats or barley; besides which they render the land foul, and of course unfit for wheat without a thorough summer fallow. It has been proposed in agricultural publications, to sow wheat after one ploughing of grass land. Perhaps this might answer on sandy soils, but on clay, the sod would remain inert, obstruct the wheat roots, and furnish little nutriment to the young plants. Besides, it is believed that frequent ploughings cause the soil to absorb from the atmosphere substances useful to vegetation.

I have already noticed the preparations for corn. I will only add that it is generally hoed but twice. Some farmers use the plough, others the cultivator. I prefer the latter. Barley requires a rich clean soil, and the more thoroughly it is pulverised, the better. It should be rolled before the last ploughing, and thoroughly harrowed in. Oats are usually sown on stubble land after once ploughing. Spring wheat is but little cultivated where I reside. Until our land can be freed from Canada thistles, charlock, &c. the three last mentioned crops ought in my opinion to be cultivated as little as possible.

"What agricultural changes are requisite to advance the prosperity of the county?" I have not, I doubt if others have, sufficient knowledge to answer the question. In this country, agriculture is not a sci-

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ence. Great improvements have been made in England, but generally they are not adapted to our circumstances. If it were not presumptuous for me to advise those who are more experienced, I would say to my brother farmers, drain thoroughly, cultivate less land, keep less stock, and never go to the expense of ploughing and sowing, until your land is in such condition as to afford a prospect of a remunerating crop. To new beginners I would say, imitate those farmers in your neighborhood who obtain the best crops.

It may be asked, can there be no improvement? Can science, so important in other branches of business, be of no use to the great agricultural interest? It might be, but where shall we seek for full and reliable information? The publications extant are sometimes calculated rather to mislead than to instruct. Our county societies may excite emulation, and furnish some useful facts. But, for scientific investigations, such as a chemical analysis of soils, plants and manures, &c. and for deducing correct theories from well tested experiments, we need, in my opinion, an able agricultural board, with two or three pattern farms in different sections of the State. Such a board would be responsible for its statements, and might be expected to give us facts and conclusions on which we could rely. It would test the value of improved implements, and new methods of cultivation; determine the profitableness of new productions; ascertain the value of imported, in comparison with domestic breeds of animals; and how far European improvements in cultivation are applicable to our peculiar location and circumstances. If the State cannot afford the expense of thus aiding its most important, but most neglected interest, I hope the State Society will use its utmost exertions to accomplish the same object.

Respectfully yours, &c.

U. F. DOUBLEDAY.

AGRICULTURE OF CAYUGA COUNTY.

Auburn, Cayuga county, January 29, 1842.

HENRY S. RANDALL, Esq.

Dear Sir—My apology for not answering your circular at an earlier date is, that it was mislaid, and I had forgotten its contents; but since receiving your last communication I found it.

The condition of agriculture in this county has materially changed since I first came here, (which was nearly forty years since;) at that

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time, the soil was new. The town in which I settled was a wilderness, and all that was necessary for us to do, was, to clear off the forest, and it became a fruitful soil, particularly adapted to wheat, of which we obtained from thirty to forty bushels per acre.

But our present condition is far different. We obtain now, rarely more than twenty bushels per acre. The decrease I think is owing to the manner of cultivation. Many farmers have been in the habit of planting their lands to corn, or sowing to oats, peas, barley, &c., in the spring, and after taking this crop off in the fall, immediately sowing to wheat; after this, peas or barley; thus taxing the land beyond its power of production; while others, who have pursued the more judicious course of sowing clover after wheat, and rotating their crops, are still getting from thirty to forty bushels per acre, if the season be favorable.

The soil of the most part of this county is peculiarly adapted to wheat, especially the southwestern part, in the vicinity of the plaster beds. Whenever we sow this crop in this region, if we sow after clover and use the plaster freely, we seldom fail of obtaining from thirty to forty bushels per acre.

The most judicious method, I think, is to sow to wheat in the fall, and the following spring sow from six to eight pounds of clover seed to the acre, with, perhaps, one and a half bushels of plaster. The next season after taking off the wheat, mow the clover the last of June, and plaster well immediately after, then the second crop of clover will start in time to fill well with seed, which will answer to mow early in September; from which crop, we get from six to eight bushels of seed per acre. The next spring after the taking off of the seed clover, we either plough and plant to corn, or let it remain and secure another crop of clover, about the middle of July; after which, we plough and sow to wheat. Frequently, however, before sowing to wheat, we roll the ground, and after letting it remain a few weeks we go over it with the harrow and cultivator, which well pulverizes the surface of the ground. The long tap root of the clover makes a fine dressing for the wheat.

Often of late, after sowing our wheat, we cover the ground from one to two inches with straw, which keeps the ground moist and protects the tender wheat from the spring frosts.

One word as to your inquiry with respect to the best breeds of cattle: I consider a cross of Devonshire and Durham the best for this climate. The Devonshire are a close, tough, hardy breed, and generally make

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the best working oxen. On the other hand, the Durhams are a looser, larger, as well as a less hardy breed, and do not come to maturity at so early an age.

With respect to the best method of fattening, I consider one bushel of flaxseed worth more than four bushels of corn, if properly prepared. I will give you my method. I put six quarts of flaxseed into a five pail kettle, and fill it with water, then hang it over the fire in the evening and let it simmer (not boil) all night. Set it off in the morning, and you will have a kettle full of jell. With five or six quarts of this jell mix the same quantity of shorts or meal, which an ox or cow will be exceedingly fond of, after eating of it a few times. Any one will be convinced of this who has been accustomed to feeding oil cake. If the oil cake is worth three shillings per bushel after extracting six quarts of oil, what is the seed worth in the pure state.

Yours respectfully,

IRA HOPKINS.

AGRICULTURE OF CORTLAND COUNTY.

HENRY S. RANDALL, ESQ.

Dear Sir—I received your communication of September 10th, containing the resolutions of the Executive Committee of the New-York State Agricultural Society, authorizing the corresponding secretary to open a correspondence with individuals in the different counties, for the purpose of eliciting information on several important points in relation to the subject of agriculture; and since you have done me the honor to address this communication to me, I shall attempt to give a very brief answer to some of your inquiries, so far as relates to the county of Cortland.

This is comparatively a new country. Within half a century it was one dense forest. The lands which now sell for fifty dollars and rising, were then purchased for less than five dollars. Then the wealth of the farmer consisted in the extent of his territory, and his profits in the rise of his lands. His energies were directed to preparing his land for cultivation, to erecting buildings and fences, and making roads and bridges. We see in almost every part of the county evidence of well directed effort in the cultivated fields, comfortable dwellings and outhouses, public buildings, temples, seminaries of learning, and above all district school houses, which are the glory of our county. The

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general aspect of the county is uneven, though not mountainous. There is, properly speaking, no waste land in the county; no large bodies of water; no barren mountains, sterile plains or sunken swamps. The hills are capable of cultivation to their summits, and afford some of our finest grazing land. The county is remarkably well watered. The Onondaga branch of the Chenango river passes from north to south through the whole extent of the county, affording numerous mill sites, and water power for all mechanical purposes. The soil best adapted to cultivation is a deep gravelly loam, well adapted to the production of grain, roots and grass, the three great staples of agricultural produce. The state of agriculture in the county is such as might be expected in a new country. There are some well cultivated fields, but no well directed system of agriculture prevails. Many fields have been under the plough for a number of years in succession, producing annually small crops of corn and other grains. Other fields have lain to grass an equal length of time, producing from one to one and a half tons of hay to the acre, with very little after feed. The state of agriculture has been much improved by the introduction of labor saving machinery, such as the improved plough and harrow, the cultivator, horse rake, and several other machines and implements of less note. Enterprising individuals have introduced improved breeds of cattle, sheep and swine, which bid fair to be of great importance to the agricultural interest of our county.

But the most important question remains to be answered, viz. what agricultural changes are requisite to advance the prosperity of the county?

To this I answer, without any hesitation, a well directed system of convertible husbandry; by which I mean a judicious rotation of crops, and a proper attention to the making and application of manure. The connection between a well directed system of husbandry in this county and the most satisfactory success, is as certain as the connection between cause and effect. By such a course the annual production of all our tillage land may be doubled in a very few years, and the intrinsic value of the soil greatly increased.

An acre of good tillage land in Cortland county, with thirty loads of long manure on a clover or grass lay, and properly cultivated, will produce eighty bushels of corn with as much certainty as forty in the common way, after other crops, and without manure. After corn, the root crop can be cultivated to great advantage, and without any detri-

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ment to the succeeding crop of spring grain, and after roots the ground will be in the most perfect order for the succeding crop. After roots, sow spring grain, wheat, barley or oats, and sow grass seed and plaster with a liberal hand; and for two or three years you may expect three tons of good hay to the acre, and at the expiration of that time a good grass lay for another eighty bushels of corn.

By this course every noxious weed will be eradicated, and the land brought under the most perfect tillage; more attention will be given to the culture of roots, which, in a stock county, like ours, is of very great importance. Cattle may be well wintered on any kind of coarse fodder, such as cornstalks or straw, with a small portion of roots daily, better than they can on hay alone. But every farmer must adopt that system which best suits his soil and circumstances. I insist that system and order are as necessary in the business of agriculture as any other; and when the farmers of Cortland shall awake to their true interest, and adopt and pursue the best system of agriculture, the county will stand on a level with the most favored agricultural districts.

Yours respectfully,

JESSE IVES.

AGRICULTURE OF DUTCHESS COUNTY.

Red Hook, Jan. 17th, 1842.

To HENRY S. RANDALL, Esq.

Dear Sir—Having received your circular, I now transmit such answers as I am prepared to make.

1. The present state of agriculture is favorable, much improvement having been made of late years.

2. Dutchess has some broken and rugged lands, but the aspect of the county generally, is very fine.

3. The nature of the soil is mostly gravelly and sandy loam.

4. The products are beef, pork, mutton, butter, cheese, eggs, poultry, hay, Indian corn, wheat, rye, oats, and wool; the last, is fast diminishing as a staple production. Many other products are grown, as potatoes, and various other roots, and horticultural produce; but do not constitute important items in market.

5. Various agricultural modes are pursued; new and improved ones, however, are gradually taking the place of the old modes.

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6. The horses are mostly of English descent. Among this blood, the Durock breed is in highest estimation. The best cross, is considered that formed by the French and English breeds; this gives the horse more constitution and hardiness, and consequently, less liability to disease, as well as greater endurance.

7. Horn cattle—Among these, the Short Horn Durham is preferred for milk and beef, but as working cattle, the Devonshire is thought superior; a cross of the two breeds is preferred by many.

8. Sheep—Formerly the fine wooled Merinos and Saxons were in vogue; but are now giving place to sheep of coarser wool, natives, Bakewells, and South Downs; the latter varieties being reared more as mutton sheep, which is considered most profitable.

9. Swine—This animal has been much improved within a few years, by the introduction of the English breeds, Berkshire, Norfolk, &c.

10. Cattle and sheep are, for the most part, fatted upon grass. More or less beeves are stall fed through the winters, and generally fed upon meal and roots. Some few sheep are also fed for the market during the winter. Swine are generally fattened upon corn, at least, the heavier pork; shoats on boiled feed, milk, &c.

11. Ploughs mostly in use, are the invention of a man in this county, by name of Chamberlain, called the "Chamberlain plough." This is generally preferred, but various other kinds are used.

12. The common square, four beam harrow is mostly used; others of late invention are getting into use.

Threshing machines, are of every kind and differently esteemed by different individuals.

Straw Cutters—Of these there are different models; Green's was thought good, but is getting out of date; some newer invention is now preferred; name not recollected.

Hay rake—The revolving rake is preferred, as decidedly the best.

Cradles—Those made in this county by a person by the name of Balis, are thought superior to any other kind.

Scythes—The Harris scythes made in this county are altogether used.

Value of our lands, is from $25 to $120 per acre, by the farm; average price, about 60 dollars per acre.

The timber is mostly oak of different kinds, chestnut, hickory, and maple.

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A diffusion of agricultural science would lead very much to advance the general prosperity of the county. To this source alone, may be attributed most of the improvements within the last few years. As agriculture is yet in a state of infancy in this country, the benefit resulting from agricultural science would be incalculable. We have the natural resources, physically and morally speaking, but require the proper means of developement.

Yours truly,

HENRY STAATS.

AGRICULTURE OF HERKIMER COUNTY.

HENRY S. RANDALL,

Cor. Sec'y N. Y. State Agricultural Society.

Little-Falls, Herkimer Co., 3d Jan. 1842.

DEAR SIR—Yours of the 11th of December last, containing certain interrogatories, was duly received, and so far as I am able I will cheerfully comply with your request.

So far as I can learn, the principal products marketed here, at the first settlement of the country, were wheat and peas. They were marketed at Albany. For many years the settlements were principally confined to the valley of the Mohawk. Most any kinds of tillage brought large crops, and little or no attention was paid to rotation. Crop after crop was taken off the soil, without any return to it, except such manure as was actually in the way. You are probably aware of the fact that this valley was first settled by the Germans, and that the Yankees made no settlements here until after the war of the revolution, during which the Yankee soldiers observed its beauties and fertility, and on their return home probably were the cause of the immediate and rapid settlement of all our northern towns, and some of the southern ones. The soil of the interior is not so well adapted to the growing of wheat as the Mohawk lands, yet they raised some; but their principal products were barley, and the products of grazing. The barley business of the county soon became very large. It was at first marketed at Albany, but large malt houses were erected in different places, after the completion of the Erie canal, and it was sold to them. As is the case in all new countries, where the soil is apparently inexhaustible, from the thick coat of decayed vegetable matter, the Yankee settlers pursued the same system of cropping as that of their Mohawk

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neighbors, until the lands of the whole county, with few exceptions, became so exhausted that farming was considered rather an uphill business. There was, until very recently, a marked difference between Dutch and Yankee farming. Most every Dutch farmer had a large drove of horses, while the Yankees paid more attention to neat cattle and sheep. Working oxen were pretty generally used among the latter, while among the former an instance of using them was rarely known. There was also a difference in some of their utensils. About 1820, the dairy business began to attract some attention in the northern parts of the county, (particularly cheese making.) All who adopted it flourished at once, and it is another instance of the difference of the policy pursued by the descendants of the settlers of New England and their Mohawk neighbors, that the benefits of dairying were confined to the former for at least ten years; and indeed, until the sterility of the once fertile land of the Mohawk, compelled the latter to adopt it.

The *principal* products marketed in the eastern cities now, are cheese and butter. Among the principal products marketed here are wool, oats, barley, Indian corn, rye, hay, beef, pork, mutton, &c. &c. In consequence partly of the large profits of dairying, the exhausted state of the soil, and the ravages of the weevil there has been but very little wheat raised in this county for several years past. We get our supply from the west. Our distillers and maltsters, who, thanks to the glorious temperance cause, have greatly diminished in number, and who were formerly supplied by the products of this county, now import much of their grain from other counties and other States. The present condition of agriculture in this county is rather favorable. It is not owing, however, to any particular scientific improvements, but to the accidental improvement of our lands by the dairy business, and the profits of that business, to which our county is peculiarly indebted.

I can give no better description of the aspect of this county than that contained in the geological report of the geological surveyors of 1838. The language of Professor Vanuxem is as follows:

"Uplifts and denundations have varied the surface, though not to the same extent as in Montgomery county. The uplifts being confined to the range of the Little-Falls, East Canada and West Canada creeks, the effect of the latter one being visible for many miles along its course. * * * * * The greater part of the county between the primary mass north, (near Black creek in Russia) and the Mohawk south, is covered with black shale, producing by decomposition a highly favora-

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ble, if not the best soil for grass. To this advantage there is added a fine southern slope, and that moderate temperature in the summer season, which is required for first rate dairies, as to quality either of cheese or butter.

"South of the Mohawk from Oneida county, the black shale extends along the course of the river, interrupted by the uplift of Little-Falls, over which, at the southern end, it passes, and connects itself with the mass below, through which the uplifts had been protruded. From thence it continues along the river, meeting but one more uplift near the county line, the prolongation of the East Canada.

"The black shale, both north and south of the Mohawk, is usually accompanied by thin layers of very impure compact limestone, in which it differs from the next mass which succeeds it, the green shale; which has, on the contrary, thin layers of sandstone or rubblestone. The two shales form the surface which lies between the river and the elevation which bounds the valley to the south, though the greater part of both is covered with alluvial."

It may be proper to say, that perhaps one-half of this county is yet a wilderness, most of which will probably in time be settled, but until the boundless, fertile west becomes nearly filled, settlements here must be very slow.

There is but little attention paid to the breeding of horses here. Some years ago, the Archia breed of Virginia horses was introduced here, but experience taught us that a horse that can win a purse at a Long Island race, will not answer for a draft horse. I believe the Duroc and Messenger are the best breeds among us. The favorite breeds of cattle for beef are the Durham; but the general opinion is that they are not first rate for milk. There are comparatively few cattle raised here. In the spring of the year, large droves of cows are brought here from the eastern, western, northern and southern counties, and Canada. They are milked through the summer, and in the fall the oldest and poorest are partially grass fattened, and driven to the eastern markets. The Merino and Saxon sheep have been the favorites of our woolgrowers. The South Downs and Bakewells may now be added to the list of favorites. The Berkshire hogs are the best as yet introduced here, although there are others nearly equal to them.

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Neat cattle and sheep are generally fattened for market on grass, and hogs are fattened on whey, potatoes, apples, grain, &c. The pork is not generally so well fattened in this county as in Oneida or Jefferson counties, owing, probably, to the small proportion of grain raised here; and indeed there is much doubt whether it is profitable to fatten hogs or cattle on grain wholly.

There are several kinds of ploughs in use here, among which, "Gibson & Johnson's" and the "Livingston County plough" are the most prominent; but I have never seen any kind that would answer our purpose as well as Clute's old patent cast iron plough, and our plough makers should have continued making them; but they were induced to lay them aside by other patentees, and we must buy what we can get. We use the common three beamed harrow. There are very few mowing machines in use here, and their field of operations is confined to the river flats, the upland being too rough. The patent revolving horse rake is in *general* use here, but I am sorry to say there are a few exceptions among those farmers who are so violently opposed to "book farming," and that monster, called "improvement," in any of its forms, that they had rather, and do still have their wives and daughters use the hand rake in their meadows. The largest quantities of grain are thrashed with machines. There are two patents here, "Yates'" and "Fox & Borland's;" the latter, I believe, is generally preferred. Straw cutters are being introduced more generally than formerly. I recollect of no other new inventions or patent tools in use here, except such as are generally known.

The general value of the improved lands of this county is from thirty to fifty dollars per acre. Some, however, is sold under thirty, and some, favorably located, over fifty dollars per acre. The prevailing timber is maple, beech, birch, basswood, elm, &c., and we are not without our pine plains, hickory groves, and hemlock and cedar swamps.

I can recommend nothing that will so effectually advance the prosperity of this county, as a general agricultural education by our farmers, which we can now only acquire by taking an agricultural paper. Although there is much room for improvements, men will not adopt them until they are convinced, and that can only generally be done through the press. A great deal of the matter in our agricultural journals is not intelligible to the uneducated mind, which discourages their

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circulation. There is hope, however, that the rising generation, which is being better educated, will work the necessary reforms.

Allow me to mention an experiment of my own. The scarcity of coarse fodder, and the high price of hay, occasioned by the drought of last summer, induced me to gather a quantity of broom-corn stalks: I am now having them tried. We cut them with one of Green's straw cutters, and feed them to cattle without any other preparation. We have kept our cattle on them about two weeks, and I have full confidence in the success of the experiment. It may have been tried before, but is new to us here.

I have the honor to be, Sir,
Very respectfully,
Your obedient servant,
AARON PETRIE.

AGRICULTURE OF MADISON COUNTY.

Cazenovia, Madison Co., N. Y., Dec. 26, 1841.

HENRY S. RANDALL, ESQ.,
Cor. Sec'y N. Y. State Ag. Society.

Sir—Your circular, dated 11th inst., containing the resolutions of the Executive Committee, adopted at their meeting in June, 1841, reached me by due course of mail, and in compliance, I herewith have the honor to hand a report of the present agricultural condition of this county.

I would beg leave to remark, that the paper is entirely a compilation of facts, which I have gathered with great care, from intelligent gentlemen, well acquainted with the county; for my residence here is too recent to have afforded me a personal knowledge of the details given.

It may also be proper to state, that at a well attended meeting of our county society, held on the 29th instant, the report was read, whereupon a resolution was passed, approving it, as being "a fair statement of the agricultural condition of the county."

I have the honor to be,
With much respect,
Your ob't servant,
ALEX. KRUMBHAAR,
Cor. Sec'y Mad. Co. Ag. Society.

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Madison county, which may be appropriately called the centre county of the State of New-York, is situated between 42° 44′ and 43° 10′ north latitude, and 0° 57′ and 1° 40′ east longitude from the city of Washington.

It embraces fourteen towns, and contains 582 square miles, or 327,000 acres of land, and 40,032 inhabitants.

Face of the county.

The surface of this county is much diversified. The elevated ridge which separates the waters of the northern lakes from those of the Susquehannah river, passing through the southern part, renders it, with the middle, more or less hilly and uneven. These hills, however, are not so steep as to be unfit for cultivation, and the valleys are extensive and very fertile. The northern section of the county is generally more level.

The county is well watered by streams in almost every part, and in the northern towns of Sullivan and Lenox large masses of gypsum and water limestone, with some iron ore, are found. Common limestone is scattered in abundance over all the middle and northern towns.

The Erie canal and the Utica and Syracuse railroad pass through the upper, and the Chenango canal intersects the lower part of the county, affording free outlets for all her products.

Soil.

The fertility of the soil is very great; indeed it is supposed, in that particular, to be surpassed by but few counties of the State; and there is but little land within its boundaries that is not well adapted to cultivation.

The northern parts are mostly of a limestone soil, except the low bottoms, which are sandy, and the middle and southern sections may be designated as of a clay loam, based upon shale, or slate rock. It is a fact worthy of remark, that this county seldom suffers from want of rain.

Productions.

The northern part of the county being generally level, is admirably adapted to the growth of wheat and corn.

The centre and more elevated parts produce large quantities of wheat, barley, oats, corn and hops, and the southern parts grow hops,

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barley, corn, oats and potatoes, in which latter crop they excel the other parts of the county, both in quantity and quality.

The soil is almost every where natural for grass, the crops averaging from one and a half to two tons per acre, of a superior quality, mostly upland. And this, with but a small outlay, might be easily increased to from 2½ to 3 tons.

The wheat lands, under good management, give from 20 to 28 bushels per acre; barley 35 to 50; and oats from 40 to 70 bushels; in some cases coming up even to 100 bushels per acre. Large quantities of peas are also grown.

The production will appear more accurately by reference to the returns of the census of 1840, in which year Madison county was shown to have raised

200,242 bushels of wheat.
135,625 do barley.
343,207 do oats.
171,204 do corn.
676,649 do potatoes.
370,024 pounds of wool.
117,270 do hops.
215,619 do sugar.
65,749 tons hay.

Butter and cheese to the amount of $193,670.

Which, together, at the low prices of 1840, yield the amount of $1,389,345.

Markets.

The farmers of this county usually find a market for their produce with the merchants of the villages, who in turn send it to the city of New-York. The cattle fattened for market are driven to Albany and New-York city; and those for grazing are sent to Philadelphia, and the farms along the North river.

Cultivation.

Attention to agriculture has been gradually increasing in this county; there is, however, yet much room for improvement. But little importance is attached to regular systems or rotation of crops. Wheat is raised after summer fallow with two or three ploughings, and the same crops are frequently allowed to succeed each other.

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The manure from stables is put generally upon the land, and plaster is also applied to winter grain and grass; but as yet very little value is attached to manure, and no methods are taken to increase it. Lime is but seldom employed, although it is admirably adapted to the soil, and composts are unknown. There appears, however, to be a general awakening to the importance of the subject.

Draining, particularly that under ground, has been partially attempted, but not to any extent, though the soil in many parts would be much improved thereby.

Of grass seeds, clover, timothy and redtop are used, the latter on interval lands liable to be flowed. Clover is seldom sowed alone, being usually mixed with timothy.

Top dressing grass lands is occasionally practised, and with great benefit.

The profitable practice of cutting or chopping straw for feeding stock may be said to be hardly known. Straw is generally stacked out, and cattle allowed to take what they want of it. It is also used for littering horses, but there are instances where it is hauled away from the buildings and burnt to get rid of it!

The cast iron plough of various constructions, with cultivators, harrows of different kinds, horse rakes, rollers, &c. &c. are in use, but few of the new improvements in agricultural implements are found here, unless perhaps occasionally a sowing machine.

Animals.

The horses of this county are very good, strong, of good size, well made and admirably adapted to all farming purposes; but they cannot be designated as of any particular strain of blood.

The breed of neat cattle is also excellent; cows on fresh summer feed, giving, in some instances, 25 quarts of milk per diem, and generally from 15 to 20. Blooded cattle have not been introduced to any extent as yet. This county, however, at the late fair of the State Agricultural Society at Syracuse, was among the successful competitors for premiums in that line. It may be proper to remark, also, that drovers from the east say that they find about the best of cattle in this county and neighborhood.

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In swine but little pains have been taken. The pork of this county is, however, very good, and in many instances Berkshires have been successfully crossed with the (so called) native breed.

The sheep of the county are generally Merino and Saxony. Formerly large flocks of full blooded animals of these breeds were found throughout the county, but now they are more mixed; attention not having been paid to keeping them separate.

Except by some few of the best farmers, no pains are taken to shelter sheep in winter. They are kept usually in flocks of from 70 to 100, and from 300 to 1000 on a farm. The southern part of the county has been much afflicted with the rot or "foot ail," which breaking out in large flocks where the same attention could not be given as to smaller ones, did much damage. It is however, now rather diminishing. As to the cause, farmers here, as elsewhere, do not agree, each one having a theory of his own.

By the census before referred to, it appears there were in the county in 1840,

9,358 horses and mules.
42,191 neat cattle.
186,616 sheep.
30,657 swine.

Value of Land.

Land in this county may be said to rise in value from $10 to $100 per acre, generally averaging from $20 to $50; and the size of farms to range from 50 to 600 acres; for the most part comprising from 100 to 150 acres each.

Timber.

The prevailing timber of the northern part of the county is maple, beech, oak and pine; and of the middle and southern sections, maple, beech, hemlock and bass. There is, however, throughout, a great variety, comprising walnut or hickory, ash, birch, elm, spruce, white cedar, chestnut, fir, butternut, poplar, balsam, whitewood and sycamore.

In conclusion: with regard to the "changes necessary to advance the agricultural prosperity of the county," it may be said, that the general diffusion of agricultural intelligence and disposition to seek for and take advantage of the improvements adopted by others, is all that is wanting to place this county in the rank which the bounty of nature has intended it to assume.

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For this purpose no better means can be devised than attention to the different agricultural periodicals now published; which, from the extreme low price of subscription, are available to every farmer however small his means. The Genesee Farmer or the Cultivator should be in the hands of every one. These being edited by practical farmers of established reputation, and belonging to this section of our country, contain the results of the experience of our neighbors, and affording the means for the general interchange of ideas, cannot be too highly prized.

The Agricultural Society of the county, also, which has been but lately established, will, it is hoped, do much towards its advancement; and from the spirit manifested in its formation, as well as the intelligent character of the inhabitants, it cannot be doubted that this county is not disposed to be behind its neighbors in the march of improvement which is now in progress.

AGRICULTURE OF MADISON COUNTY.

Madison, 20th November, 1841.

HENRY S. RANDALL, ESQ.

Sir—In compliance with your circular of 13th Nov. last, I proceed to answer some of the subjects of inquiry therein contained, although I am not now engaged in practical farming.

The county of Madison contains a diversity of soils, and may be said to vary much in its climate; as the northerly part, between the Erie canal and the Oneida lake, is in general only between 350 and 400 feet above the level of the tide waters, while the central and southerly, and southwesterly parts rise in ranges of hills to the height of from 1600 to 1800 feet above the level of tide waters. There is always a marked difference in the time of the ripening of grains and the general maturing of crops between the lower and more elevated parts of the county—always being earlier in the northern and lowest part. The lands from the Oneida lake south to the Erie canal are level, the lake being only about 45 feet lower than the long or Utica level of the canal, and are generally a rich alluvial soil, some districts of which are well adapted to the culture of the different kinds of grains, and all, or most of it, is considered a great grass growing district. Immediately south of the Erie canal, generally, the land commences to rise until it terminates in the elevations before mentioned. A belt of land south of the Erie

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canal for some distance as it rises in the vicinity of the lime and gypsum formations, passing through the towns of Sullivan, Lenox and Stockbridge, is undoubtedly the best wheat district in the county, and also excellent for all other grain crops. There is another district of land, different from the lands of the county generally, and may be termed table land, and is of a general elevation of 800 feet above the Erie canal at Utica. This section of land commences in the east and northeasterly part of the town of Madison, passing west and southwesterly quite through the town into the easterly part of the town of Eaton; thence more southerly through the west and southwest part of Madison, east and southeast parts of Eaton, west part of Hamilton and east part of Lebanon, to the south line of the county, and passes into the county of Chenango from Hamilton, forming the northern entrance of the Chenango valley. All of this district of land (or principally) is a very deep and porous loam and gravel soil, some parts sandy loam and gravel, and is an exceedingly strong and fertile soil, and may justly be ranked as second best wheat district in this county, and is peculiarly adapted to the culture of Indian corn, which has matured on this land in the most unfavorable seasons, while on the hill lands at a moderate elevation above, it would not in those seasons. This district of land is also adapted to every other of the straw grains cultivated in our country, and invariably produces heavy crops, and is a natural grain growing district. Most of the town of Cazenovia is also adapted to the culture of grain. Several other sections of the county are natural grain growing lands, but no other district as large as those before mentioned. There is in fact but little of the highest lands in the county but what produce good crops of spring wheat, barley and oats, and Indian corn matures on it in favorable seasons. There is produced in the county generally the grains for home consumption, and a large surplus; and particularly of Indian corn, barley and oats. Barley is shipped to the Albany market to some extent, but the surplus grain generally finds a market at the extensive distilleries in this and the adjacent county of Oneida. This county is susceptible of producing an amount of grain for export vastly larger than it does. Notwithstanding, as a whole, it is a better grazing than a grain growing county. It is probable that there will always be sufficient of the grains produced in the county for home consumption, and a considerable surplus for market, and particularly of the coarse grains. When the county was new, winter wheat was raised in abundance, even on the hill land, and on the first summer fallowing of pasture lands, heavy crops of winter wheat was

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produced, and was not hove out by frost. No one then doubted but hat it would always be a wheat country, and to a considerable extent it might still be, but for the action of the frost on the hill lands, heaving ou the roots of winter wheat. There is but little hill land that has been pastured a few years and then summer fallowed but has strength of soil sufficient to produce a heavy crop of winter wheat, and have it fill well when the action of the frost is prevented, which has been sufficiently proved; but spring wheat on the hill lands generally is cultivated, on account of the precariousness of winter wheat; and the variety which obtains most favor is the Italian.

It has been abundantly proved, that spring wheat, barley, and oats, can be advantageously produced on our uplands, on greensward turned over. But as a whole, the true interest and most permanent wealth of the inhabitants of the county, lies in the cultivation of the grasses, on which the greater portion of the farmers of many sections of the county, have for many years bestowed their chief attention, and in rearing neat stock for store cattle, fattening, and for the dairy, and numerous flocks of fine wooled, and other grades of sheep; which has been a lucrative business, having made many farmers wealthy, and all those in a thriving condition. The soil of the hill lands of the county, differs much from the table lands and the valleys, being generally free from gravel, and is generally composed of a rich loam and vegetable matter. The loam, in many places, is of a dark or chocolate color, in other places of a lighter color, inclining to yellow.

The native growth of timber is maple, beech, white ash, white and red elm, butternut, cherry, some birch, in many places considerable hemlock, bitternut hickory, and in the northern and northwestern parts of the county white and black oak, and hickory; and in swamps, white pine, cedar, and black ash. There are some upland pine lands, principally in Smithfield, Cazenovia, and Eaton, but they are not extensive, and the timber has principally been converted into buildings. The neat stock of the county is mainly of the native breeds; there are not many Short Horn Durhams, though some. There is yearly a considerable number of neat cattle fattened for market. The principal article of food in fattening them, is the potatoe; but Indian meal, barley and oat meal, is also used as feed with the potatoe, and also oil-cake. Pork is also fattened extensively on potatoes boiled and mixed with barley, and oatmeal, pease, and some Indian corn is fed toward the close of the fattening, but is not extensively fed. Good and heavy pork is made by

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he above mode of feeding. Those who keep a dairy, fatten hogs on the refuse of the dairy.

The swine consists of various breeds and crosses, and are much improved since the first settlement of the county, and are still improving. Berkshires, and crosses from them, are becoming common, and are in high repute. Of sheep the Merino and Saxony have prevailed, with every imaginable grade, by crosses on the native breeds. As a root crop, potatoes prevail vastly over all others, and are extensively cultivated both for fattening domestic animals and for feeding store cattle; and are abundantly produced, or can be, on most soils in the county. The ruta baga has been cultivated by some, but has not obtained favor with the farmers generally. Carrots are cultivated to a limited extent by some, and fed to milch cows and other stock, and are held in high repute. Hops have been extensively cultivated from an early day in this county, and yet continue to be, which has been a source of considerable wealth to those engaged in that culture.

The ploughs in use are the cast iron, of various patterns, no one prevailing exclusively. Double or hinge harrows, are much used of late years, and are considered a great improvement in that article. Cultivators of several models are used among corn, and are considered an improvement by many, over ploughing among it, at the time of hoeing. Of grasses for meadow, timothy or herds grass, is mostly cultivated, clover mixed with it to some extent. On wet or swampy lands, red top or foul meadow. The principal grasses cultivated in the county for meadow and pasture, are red and white clover, herds grass or timothy, red top and fowl meadow. Spear or June grass, grows spontaneously without cultivation. Some orchard grass or Dactylis glomerata, is cultivated by some, and produces an excellent hay, and an abundant growth of feed for pasture, and for that purpose is most valuable, starting earlier in the spring, and after being mowed or fed off, enduring the drought better, and yielding feed later in the fall than any other, and its roots never winter killing, and is easily subdued. Its culture should be extended, and particularly for pasturage. The greater part of the county being hilly with numerous valleys of rich land, the hills abounding with springs, which water the valleys, peculiarly adapts it for a grazing and stock growing county; and all the best grain districts will also produce good meadows and pasturage. The fat cattle and sheep, pork, butter, cheese and lard, are principally sent to, or purchased for the New-York market.

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Store cattle and swine are either sent to, or purchased for the different eastern markets. The aggregate annual value of grain, store and fat cattle, pork, lard, and store swine, store sheep and wool, hops, and the products of the dairy, that are sold at the different markets, I have not the statistics of before me, but which I think amounts to nearly $2,000,000.

Wool is one of the principal staples, some of which finds a market at the manufactories of this and the adjacent counties; but it is mostly purchased by wool staplers for the manufactories in the New-England States.

In addition to farmyard manures, gypsum is used to a considerable extent as a fertilizer, particularly on pasture and meadow lands.

In regard to rotation of crops, the practice that most prevails, and particularly on the gravel table lands, is, to spread the stable and barnyard manures on the greensward of pasture, or meadow lands, carefully turn it under, pass over a roller, drag with a light harrow, and plant Indian corn, dress the crop with a cultivator, and hoe twice; and it is not uncommon to obtain a yield of from sixty to seventy bushels per acre. The succeeding spring this land is sown with barley, and usually produces a heavy crop; the stubble is then turned under and sown to winter wheat, and seeded to grass; the wheat yielding generally a heavy crop, and the land left in better condition than before. The same rotation prevails to some extent on the up or hill lands, except sowing spring grain, generally after barley; the crop of winter wheat being more precarious on such land.

In regard to the culture of silk, a goodly number have commenced the business on a small scale, and their experiments have generally been satisfactory, demonstrating that it can be made a lucrative employment for females, and the labor of children. In fact, there cannot be for females so lucrative a domestic employment, to those who wish to be industrious, as the culture of silk, and of manufacturing the raw material into sewing silk and various articles of dress, both for use and ornament, for which the ingenuity of the fair of our country are distinguished. But the males must furnish the plantation of mulberry trees.

The Morus Oregona, or Oregon Mulberry, was introduced into this place by me, some five years ago, or five years next spring. They

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prove to be hardier than any other kind or variety with which I am acquainted, and I have ten different kinds and varieties. My new plant has endured the rigors of our severe winters, without injury, where the Italian, or Morus alba, standing beside them, would be killed, both the branches and the main stem. I have them growing at an elevation of about 1300 feet above the level of the tide waters at Albany, and nearly 43° N. latitude, and flourish well. The leaf of this new plant is larger than the Multicaulis usually is, and is much thicker and more heavy, being a more fleshy leaf than any other of the mulberry species known to me, with but very little woody fibre in the leaf; and it contains much more milk juice, and less of water, than any kind known to me. I have fed the leaf of this new plant to silk worms, four seasons, and in all cases my worms did better, fed with this leaf; were more healthy, and made better cocoons, than those fed on the other kinds; and in all cases, produced a finer and more flexible filament, and of a richer and more brilliant lustre than I have ever seen on any silk other than this, either foreign or domestic; and the silk has been so pronounced, by hundreds of the best judges of the article. This tree will certainly be an acquisition to silk culturists, particularly in the northern States, as the culture of silk progresses, and the merits of this tree becomes known.

In regard to the value of lands, there is but little improved or partly improved, in the remotest situations but will sell for $20 per acre; and better lands, and more favorably situated, are valued from $25 to $35 per acre; while the best situations, of farms, both in regard to thoroughfares, soil and buildings, are valued at from $40 to $60 per acre. Farms have been sold as high as $60 per acre; but the average value of land in the county, I think, would not exceed $35 per acre.

I have not had the time to bestow on the subject, that I could have wished, and hope that some other correspondent will have communicated something more full and satisfactory. If, however, you can glean any thing from the above, that you shall deem satisfactory, I shall be gratified.

I am, sir, respectfully, your obedient servant,

THOMAS MELLEN.

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AGRICULTURAL OF ONTARIO COUNTY.

ALLEN'S HILL, RICHMOND, ONTARIO COUNTY, N. Y.
12th January, 1842.

HENRY S. RANDALL, Esqr.

Dear Sir—Your letter of interrogatories on behalf of the New-York State Agricultural Society, has been received.

The present condition of agriculture in this county generally, as well as in this immediate portion of it, may be called good. The soil of Ontario is rich, but in different sections it presents every variety of loamy, clayey, sandy, and the various degrees of admixture of these.

The aspect of the country is agreeably undulating and picturesque. The principal product of the county, since its first settlement, has been wheat. The coarser grains are cultivated, but mostly for domestic consumption.

Wool has become within twenty years, an important product of our farms. This town, Richmond, had at the recent census about 28,000 sheep, chiefly Merino and Saxon, and these mixed upon the common stock. Some, but not much attention has been paid to the Bakewell, South Down and larger breeds of English sheep. Our sheep husbandry would doubtless be improved by increased attention to root culture, beets, ruta baga, &c. Our wheat is sold to the merchant millers of the neighborhood, whence the flour is mostly sent, by the way of the Erie canal to New-York and Boston. A portion of it, however, finds its way to the Canada market.

Our wool is generally sold at home, to purchasers for the eastern manufacturers.

Of cattle for milkers and beef, the short horned Durham is the favorite breed. For working oxen, the Devonshire is still the best. Of swine, the Berkshire is, at present, the favorite. Much pork, since the temperance cause has been in the ascendant, has been fattened on apples. For a number of years, I have fed my hogs, but about a fortnight on Indian corn, after taking them from the orchard; and have thus made excellent and profitable pork. Good horses are raised in this county; but the present race are an admixture of almost all varieties of breeds.

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The different oaks, hickories, black walnut, butternut, elms, maples and beech are the prevalent timber of this neighborhood.

The value of farms may be said to range from $35 to $50 the acre, according to the situation, quality of soil, buildings, &c. &c. Occasionally, farms are sold at higher prices.

Clover, timothy and redtop are the grasses most cultivated and most profitable for pastures and meadows; nor is it probable, that these will be soon superseded by any other kinds.

To the question—"what agricultural changes are requisite to advance the prosperity of the country?" It may be answered, the extended introduction of the silk culture would probably be one of those changes.

Our farmers are industrious, enterprising and tractable; ready to adopt, and give fair trial to any improvement in the science of agriculture, to test new implements and machinery, and need nothing to advance their prosperity, but wholesome and steady laws of protection to American industry. They regard with alarm the final reductions of duties taking place this year, in the famous "compromise act." And they look with the liveliest interest to the action of Congress, at its present session, in the revision of the tariff.

Will not the New-York State Agricultural Society, at its meeting soon to be held in Albany, take this subject of the tariff under its consideration, and memorialise Congress in relation to the due protection of our great agricultural interests?

I am, dear sir, very respectfully,
Your obedient servant,
Z. BARTON STOUT.

AGRICULTURE OF PUTNAM COUNTY.

CARMEL, PUTNAM, Co., N. Y., *January* 15*th*, 1842.

H. S. RANDALL, Esq.

Dear Sir—I had the honor, some time since, to receive an official communication from you, containing several interesting and important inquiries in relation to the agriculture of this county.

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I could have wished, sir, that you had selected some more competent individual in the county of Putnam, that could have answered the letter and spirit of those inquiries better than myself. You will allow me to say, therefore, that in undertaking this duty, I have been prompted to it from the desire I feel to contribute, in the best way I am able, to the interests of the Society, in the more general spread and diffusion of the information contemplated in your inquiries; all of which seem to be of high importance to the steady advance of our agriculture.

I shall take up the subject somewhat in the order as presented in the inquiries, and will then have to give only such of my own views as I have formed, without the aid of any documentary evidence or statistical reports.

1st. The present condition of agriculture in the county, and the changes since the first settlement?

It is well known that what now composes the county of Putnam was formerly that part of Dutchess county, lying south and on the mountains of Fishkill, extending on the north from near Cold Spring, on the Hudson river, running eastwardly to the Connecticut line, including, originally, five towns, viz: Phillips, Kent, Patterson, Southeast, and Carmel, the latter of which is the shire town. It may be well to remark, that it is only now some 20 or 25 years since, that the Morris and Phillips *patents* covered a large share of the county, in the towns of Phillips, Carmel, Kent, and Southeast. We were then only tenants in common, on these patent lands, (except, perhaps, a little different on the Morris tract, which was sold to the original purchasers by the State, as confiscated property, and since claimed and extinguished by the State, under the Astor title.) These titles for many years crippled the enterprise of the inhabitants, and but little else was done but to scrape from the soil all that could be gathered, without any return by way of improvement. I am happy to say that these landlord titles are now nearly all, or quite extinguished. We are the lords of the soil we occupy, and a much better state of things has succeeded. Our present state of agriculture is creditable to the age in which we live, and to the industry and enterprise of the inhabitants of the county. Much of our lands have been cleared of stone, which has been made into durable fence; swamps and tracts of waste and wet lands have been ditched and drained, by under courses, to a very considerable extent. The summer fallow system, and the everlasting ploughing the same fields,

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have given place to a more judicious rotation of crops, and principally by the aid of grass seed, timothy, and clover, and the free use of plaster. Our worn out lands have been resuscitated; and where, but a few years since, upon our bleak and barren ridges, our washed and gullied side hills, and upon our sandy and gravelly bottoms, nothing grew to repay the toil of the husbandman, is now seen as great a proportion of rich pasture and meadow lands as will perhaps be found in any other section of the State. I think I am safe in saying, that contrasting Putnam county, at the present time, in her agricultural productions and improvements, with what she was twenty years since, we shall not be found a whit behind the best of our sister counties, and ahead of most of them, in this matter.

2. Aspect of the county? This is quite uneven in surface, and alternately divided into hill and dale, and mountain land, and watered most abundantly from springs and rivulets, gushing in almost every direction, not only from the bottom lands, but from the hill side, to the mountain top. The principal streams are the three branches of the Croton, which have their sources near the Fishkill mountains, and then running a southerly course and forming a confluence into one stream, near the centre of the south line of the county, dividing it from Westchester, and thence running in a southwest course, emptying itself into the Hudson, near Fellows Point. This stream is said to be purer water than most rivers in this section of the State, and when the works are completed which are destined to convey it to the city of New-York, the enterprise will form one of the most surprising works of art that will have been accomplished at the present day.

There are also several beautiful lakes found in this county, abounding with fish, the most noted of which are the large pickerel. A few of these fish were transported from the east and put into these lakes about twenty years ago. They have multiplied greatly, and now furnish frequent repasts of this most delicious food. It is worthy of notice, that the Lake *Mahopeck, the Indian name*, is situated in the town of Carmel, and has of late become a very celebrated retreat for the citizens of New-York city, during the warm season of the year. Two large and convenient hotels have recently been built, and they were filled to overflowing the last summer, and another, I understand, is to be erected the ensuing season: besides, the farm houses in the vicinity of the lake can have all the boarders they will take. This place is about 12

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miles from Peekskill, and very easy of access from the surrounding country, and by good roads and public stages from Peekskill.

3d. Nature of the soil? They may be said to be of four kinds, clay and clay loam, which are found most upon the bottom and ridge lands. The dryer soils are gravel and sandy loams; the latter of these makes but a very small proportion of our soil.

4th. What are the principal products? It will be perceived, from the nature of our soil, that it is better adapted for the cultivation of the grasses, and the rearing and fattening of neat stock, and keeping dairies, than for growing grain for exportation. Hence the former composes our almost entire articles of production for exportation or transport; and these are marketed at our landings on the river, and the city of New-York.

6th. What kinds of cultivation are in use? The common method of cultivation is to plough green sward in spring, for hoed crops, and fallow in the fall, for wheat or rye; *or again*, it lays over till the following spring, for oats, and sometimes *again*, for a second hoed crop, corn or potatoes, and is then fallowed for winter grain. Generally, however, only three crops are taken before laying it down again to grass. As grain is only raised with us for home consumption, so it requires only to have a small share of our land at any time under the plough; and by the application of the ordinary quantity of manure, gathered from the farm, and applied to the hoed crops, gives the above rotation of crops, without producing any deterioration of soil, and more commonly leaves it much improved for the succeeding grass crops which follow.

7th. What are the favorite breeds of horses, cattle, sheep, and swine? and how are the stock generally fatted for market? The breeds of stock among us are almost as various as the farmers who keep them, and there are but few young animals raised, except hogs; and more recently, the English or mutton sheep have been raised to some extent. The cattle and sheep, and sometimes horses, are usually purchased from the droves that are driven into this section from other parts of the country. They are fattened upon grass, and turned to the butcher at the first favorable market. The pork that is made for sale are pigs, fattened or made on the dairy, with but very little grain in fitting them for market. The Berkshire hog has been intro-

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duced to some considerable extent: their color is considered an objection, and they do not sell as well in market on this account. They have, however, made some very good crosses on some other breeds among us, whenever the white color predominates from the cross.

6th. What are the agricultural implements in general use? The cast plough is one of the most important. Wood's has been much approved; and more recently, Minors & Horton's, manufactured at Peekskill, may be said to rank among the best in common use throughout the county. The cast scraper is also an implement of great utility, and much used. No farmer should be without one. The revolving horse rake, hoe, scythe, and cradle are to be found here in a great degree of perfection. The threshing machine and cultivator are not used to that extent which their importance demands; and as for *steam ploughs, corn planters,* horse machines for *mowing, reaping,* and *sowing,* we do not want them, for the very reason that our lands would not admit of their use.

What is the general value of the land? This is not subjected to that variation or fluctuation in price that it is in many other sections of our country. Our location, and the permanent improvements of the soil by draining, fencing &c., and I may add the increasing wealth of the county, has given a stability in prices to our lands which but few sections are favored with at the present time. Our lands are selling now at from 30 to 100 dollars; the medium price may be said to be from 50 to 80 dollars per acre.

10th. What kinds of timber generally prevail? White and black oak, hickory and chestnut grow together upon most of the woodlands, except swamps. The prevailing timber here is mostly maple, with the ash and beech to a small extent.

11th. What agricultural changes are requisite to advance the prosperity of the county? I have come now to the last question proposed under the first branch of your inquiries, and if I should consult my own feelings, I would decline an answer to this *altogether.* But without laying claim to any superior knowledge in my agricultural pursuits, I will venture to suggest a few things, or changes, which might have a tendency to advance our prosperity, notwithstanding, as I have said, we may not be found a whit behind our sister counties in agricultural improvement. My fears now are, that we shall soon be left far be-

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hind many of them, unless we can be aroused to avail ourselves of the information and privileges within our reach. I am sorry to say that we have not, as yet, formed an agricultural society in the county, and but very little disposition is manifested generally to organise and sustain one, and patronize the agricultural papers of the day. *To begin with*, a change in this respect is of great importance, and it seems to me, that to every reflecting man, it no longer remains a *problem* whether *agricultural societies* and *agricultural papers* are useful or not. The only reason I have to assign for this indifference is, that we have been getting along very well without them heretofore, and therefore many think we can still, and this is just no *reason* at all. Again, it would, I think, advance our interest if more attention was paid to increasing our own animals, especially cattle and sheep, and a better system of keeping them during the winter season of the year, by housing both their forage and themselves during the severe part of it. The growth and profit to be derived from animals comfortably fed and housed in this way over the common mode, by running out, will much more than pay the interest on the cost of barns and sheds. The extra *manure*, and the saving in the *fodder* and *time*, in the season of securing it, would be clear gain besides. The constant practice of changing our animals, and not being in the habit of raising young stock, has, no doubt, and I fear will yet for some time to come, prevent in a great degree the introduction of good blooded animals among us. I hold it as a sound maxim, that as the value of land is increased by permanent outlays upon buildings, soil, &c. &c., unless we increase in the value of our stock in any given number, and in the productions of the soil, we shall be actually growing poorer instead of richer upon all highly improved farms. What would Great Britain have been, I would ask, in comparison to what she is now, if she had not improved in the value of her domestic animals, and in the products of her soil? I will remark once more that the proper value and right application of manures is not sufficiently understood among us. Plaster has superseded the necessity of this to a great extent. My own opinion is, that from its long and abundant use upon our lands, or from some other cause not well understood, it has lost much of its good effects. More especially is this the case where the land is seldom, or never has been under the plough. Unless, therefore, we can increase in the quantity of our manures, or resort to some other substitute, not in use with us, our lands will not improve as they have done in times gone by. I have now, sir, but too imperfectly, endeavored in some degree to answer your request;

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and I have been obliged to do it now and then, as I could spare the time from my daily business. Such as it is, it is at your disposal.

Most respectfully yours,

LEONARD D. CLIFT.

AGRICULTURE OF QUEENS COUNTY.

Jericho, Queens Co. Jan. 13th, 1842.

To HENRY S. RANDALL, Esq.
Corresponding Secretary of the
New-York State Agricultural Society.

Dear Sir—Your circular propounding certain inquiries in regard to the state of agriculture in this county, has been received, and I now proceed to answer it so far as I am able.

The first question is, "*what is the present condition of agriculture in your county, and what changes have already taken place since its first settlement?*"

It is greatly improved, especially within a few years past, there being probably double the amount produced now, that there was thirty years since.

"*Aspect of the country,*" and "*nature of the soil?*" The north part of the county is hilly, and the soil rich and fertile, producing the various grains, hay, fruit and vegetables in abundance. The south side of the county is generally low, flat land, with a warm, sandy soil, well adapted to grain, of which large crops are produced. This part of the county is being rapidly improved.

"*What are the principal products?*" Wheat, Indian corn, oats, potatoes and hay; the latter forming a considerable part.

"*Where are the products marketed?*" At New-York and Brooklyn.

"*What are the favorite breeds of horses?*" The English race horse, all tracing their pedigree back to old Messenger. They are handy farm horses, as well as excellent roadsters. A few years since, many of the most valuable studs in the interior and western parts of the State were from this county. Messenger, the stud that took the first premium at the recent fair at Syracuse, and also at the last fair of the

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American Institute, was of that breed, and left this county a few years since. Eclipse, the most famous horse for speed and strength ever in the United States, was raised in Queens county, as well as many of the noted trotting horses of the present day.

"*Cattle?*" Durhams, crossed with natives. The largest proportion are natives.

"*Sheep?*" Bakewells and South Downs, crossed, are the favorite breeds, as their lambs are fit for market earlier than others. The largest proportion are Merinos and Saxonys.

"*Swine?*" Berkshires are taking the place of all others.

"*How are the stock generally fattened for the market?*" The swine on corn in pens; the other stock by grazing.

"*What ploughs, harrows and other agricultural implements are in general use?*" There are a variety of ploughs in use, among which are Freeborn & Hitchcock's, and Wood's. Perhaps they constitute the largest part. The square harrow and a few cultivators are used.

"*What is the general value of the land?*" Farms may be bought at almost any price, from $20 to $100 per acre. The general value differs not much from $80 per acre. There is a large tract of uncultivated land, perhaps 15,000 acres, that can be bought for a few dollars per acre.

"*What kind of timber generally prevails?*" Hickory, the three oaks, and chestnut. There are also large quantities of locust or acacia.

"*What the most profitable grasses?*" Red clover and timothy or herd's grass.

Above are such answers to a few of the questions, as I have been able to obtain from many of our most intelligent farmers. The other questions I must leave to others, or at least until another time.

I am, sir,
With great respect,
Your most ob't serv't,
ALBERT G. CARLL.

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AGRICULTURE OF SARATOGA COUNTY.

By Howell Gardner, *President of Saratoga Co. Ag. Society.*

West Greenfield, Jan. 5th, 1842.

Dear Sir—Your communication was received a few days since; December 23d. To your inquires time will allow me to make only a few brief answers. The condition of agriculture in this county is somewhat improved in the last ten or fifteen years. This county has been mainly settled and cleared since the close of the revolutionary war. The manner of clearing land by our early settlers was somewhat different from the practice in some other sections, where they made clear work with the timber at the first chopping; here the practice was to cut down some trees and girdle others, so as to let in the plough and the sun. This girdled timber would be constantly falling, so that every year would require a new clearing; some ten or a dozen years, however, got through with this process of clearing land. The original farmers have, like most others of that period, pursued the system of constantly drawing from the soil, without returning any thing back, until its original strength became frittered away and exhausted. Since that time, however, there has been great improvement in manuring and renovating exhausted soils, clearing off the stone, of which we have abundance, and putting them into wall; draining low lands, and fertilizing others, so that the general aspect of the county is very much improved. There was an agricultural society formed in this county some twenty years ago, but the agricultural efforts of that day were not accompanied with that degree of scientific research and general diffusion of agricultural knowledge, so anxiously sought after, and so easily obtained, from the numerous publications on that subject at the present time. This old society continued, while the bounty of the State lasted, and then declined. Its good effects, however, are partially seen at this day. There is now evidently a laudable spirit of improvement awake, and increasing among our farmers, that promises a better state of things with the cultivator of the soil; and many are already in the full practice, on their farms, of the modern and more enlightened course of husbandry. The soil of this county, except along the margin of the Hudson and Mohawk rivers, is of a sandy loam, producing all kinds of grain and roots. Rye, corn, oats and potatoes enter largely into the productions of our farms. With those grains and potatoes, mostly ground and

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cooked, the farmers fatten their beef and pork. Of the latter there are large quantities made in this county. Beef, pork and wool are our principal products for market. The head of sloop navigation on the Hudson, at Waterford, Lansingburgh, Troy and Albany, are the common markets for this county. Our wool, however, is generally sold at home, to agents of the eastern, or New-England factories. The kind or manner of cultivation most in use here is to break up the ground, manure and put on a hoed crop, then sow with the various kinds of spring grain; seed with clover; apply plaster, and pursue this rotation. The agricultural implements generally in use here are the plough, of the old Wood patent improved; the cultivator among corn; harrows of the joint, or hinge construction, of various sizes and numbers of teeth. The roller is much in use, and is considered an important implement in seeding down our sandy loam lands. Of animals, horses of a substantial draft breed, built for the collar and harness, are most approved and in general use here. Of neat cattle, some of our enterprising farmers have introduced some of the high improved imported breeds, which are now becoming popular. Of sheep, we have large numbers, and of a high quality for wool. Some of our old farmers entered early into this business, and procured their stock from the imported merino flocks of Chancellor Livingston, of this State, and of Col. Humphrey, of Connecticut. From this early day they have been improving, by crossing the Merino with the Saxon, so that our favorite flocks now are of the Merino and Saxony breeds.

Of swine, the Berkshire is a favorite breed, and growing into general use. It is thought, however, by some, that a cross of the Berkshire, with a breed frequently raised in this county, called by our farmers the Durock breed, is an improvement upon both; and some of our close observing pork growers are pursuing that course. The kinds of timber that originally prevailed in this county, on our ridge lands, was oak and chestnut, with some white pine. This being the best kind of land for tillage, is much cleared off. On our flat lands, and also on the mountain, grows the maple, beech, birch, ash, elm, basswood, hemlock and spruce. Originally there was a strip of land some two or three miles wide, and lying four or five miles from the Hudson river, and running parallel with it, extending the whole length of the county, covered exclusively with white and yellow pine timber. This timber, by the hand of the lumberman, has now almost entirely disappeared, but the land, in the hands of judicious cultivators, makes the first rate grain land. The changes that would seem most necessary to advance the

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agricultural prosperity of this county would be to awaken a universal spirit of inquiry among our farmers, as to the best practical and profitable modes of farming now in use; availing themselves of every useful suggestion from their brother farmers, to promote the cause, wherein lies their best and mutual interest.

The general value of land, as averaged throughout the county, by the board of supervisors, is seventeen dollars per acre. This, however, includes vast quantities of back unimproved land. Our improved farms are selling from thirty to fifty dollars per acre.

Very respectfully yours,

HOWELL GARDNER.

HENRY S. RANDALL.

AGRICULTURE OF WASHINGTON COUNTY.

North White Creek, January 13th, 1842.

To HENRY S. RANDALL, Esq.
Corresponding Secretary of the
New-York State Agricultural Society.

Sir—I had the honor this day to receive a communication from you, dated 11th Dec. 1841, soliciting answers to several interrogatories in reference to agriculture in this county.

The interrogatories proposed are such as should command the attention and enlist the interest of every farmer in the land, and such as our profession should be able to answer understandingly, "*instanter*." But we, who are accustomed to wield the plough and spade, feel a timidity when called upon to wield the pen, which shakes even our hardy nerves, and we are inclined to hand the subject over to such as have studied the science more, and practised the art less. But the time has arrived, when, to render our profession as useful and honorable as it was designed by the Creator, the pen must follow the plough, and be governed by the same hand; and the time has also arrived, in which he who *ploughs* may *write*. The press, which, but a few years since was silent on this most important subject, is now sending forth in numbers and volumes, intelligence for the farmers' library; so that he who is not under the dominion of covetousness, can no longer remain ignorant or silent.

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Though I am unaccustomed to write for the eye, yet I shall attempt to answer the most of the interrogatories proposed in your circular, very briefly, (for want of time,) and shall confine my answers chiefly, as relating to that section of the county in which I reside, and more directly to this town.

1st. THE SOIL.

In order to give a proper understanding, I shall arrange this under three general heads, to wit, *flat*, *alluvial* and *hill land*.

The Flat Land

Is situated between the ranges of hills with which our county is interspersed, and bears more evidence of a general inundation in some bye-gone period, than that which is usually termed alluvial. Upon these flats, we usually find three kinds of soil, to wit, gravel, loam and clay, and not unfrequently sand; and these so interspersed that they may all be found in a distance of 10 to 15 rods, lying in veins parallel to each other. All the flat lands yield better crops now, than when first brought under tillage, with the exception of the wheat crop.

The Alluvial Soil

Is not abundant in this vicinity, owing to the fact that our streams are generally small and rapid, and not subject to overflows.

The Hill Lands

Are generally of the loam order, with occasional veins of slate. Where the latter is not found, rocks abound, and the summits generally present broken ledges. These lands are also much improved by cultivation, and are becoming valuable for pasturage.

The products are corn, oats, rye, barley, wheat, flax, peas, potatoes and other products of our latitude. The most abundant of these are corn, oats and potatoes, all of which amply reward the husbandman for his labor.

Wheat was formerly raised with success upon all our soils, but for the last 20 years, the innovations of the fly have rendered the crop too hazardous to venture the experiment. And I am inclined to the belief that our soil has in some measure lost some essential ingredients in its composition, necessary to the successful production of this crop; though for the last few years, many, and perhaps most of our farmers

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have ventured the experiment of raising wheat on a moderate scale, and their success has been flattering. And the hope is indulged by many, that our golden harvests may return to us with their enriching treasures.

Troy has, since the settlement of this county, been our principal market. But the progress of the arts in our sister States of Vermont, Massachusetts and New-Hampshire, has moulded their mountains of rocks and granite, into manufacturing towns and cities, and the thousands who are there employed are calling aloud for our surplus products. Hence, much of our produce is now purchased at our doors, by eastern manufacturers, merchants and produce speculators.

The modes of cultivation are much the same as those adopted by our forefathers.

The breeds of horses now in use, are almost as diversified as the individuals who use them. Some years since, the Magnums were considered favorites, and were a stock of hardy and well fashioned animals, (some of this stock is still in existence here;) since that time, efforts have been made to improve our breeds of horses, by the introduction of the Eclipse breed, which are still being reared in our vicinity. The Messenger stock in its purity, was considered a favorite stock, but it now exists among us in scattered relics.

The above remarks in reference to horses, by a change of name only, will apply to our breeds of cattle. Some few individuals only, having introduced imported breeds.

The breeds of sheep. A cross of the Merino and Saxony, is the most approved stock in this vicinity, by our most extensive wool-growers; many of which, are reared, and a large amount of wool is annually produced.

Breeds of swine. The most approved breeds of swine are a cross of the Berkshire and Saratoga, which with proper feed are often made to weigh from 500 to 800 lbs. By fair experiment, the Berkshires were found too light for profit. But a cross with the Saratogas seem to furnish the desideratum.

I am admonished by the narrow limits of my sheet to close. Which I do with a promise to resume the subject at some future period, if what I have now communicated is thought to be of service to your

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Society. Any further communications from you on the subject, will be gratefully received by your

Humble servant,

AHIRA ELDRIDGE.

AGRICULTURE OF SOUTH CAROLINA.

Charleston, S. C., Dec. 10, 1841.

DEAR SIR—Your letter dated October 21, did not reach me until a day or two since, too late to prepare such a paper as you desire for the period indicated in the printed communication. I regret this the more as I was lately present at a meeting of our State Agricultural Society at Columbia, where information on the several subjects of your inquiries might have been obtained. The various agricultural productions of this State alone, and the methods employed in their culture, would require much time and some labor to describe. On the river swamps, reclaimed and protected by embankments, rice is raised in greater quantities to the acre, (sometimes exceeding 70 bushels,) and of better quality than in any other country we know of; and the whole system of surface irrigation by which this effect is produced, is certainly equal if not superior to any practised in Europe or Asia. On the islands bordering our seacoast is produced the fine black seed cotton, so much prized in Europe, and in the culture of which our planters exhibit great skill and industry, employing very extensively the salt sedge which abounds in the neighborhood of these islands, to manure the lands. In the middle part of the State, and above the influence of the tides, a mixed system of farming and planting is in progress, which promises great advantages. The cotton planters begin to find that it is more advantageous to cultivate corn and grain, and to raise their own stock, than to employ their whole force in producing cotton only. The high prices formerly obtained for that article seduced them into a practice which has proved prejudicial to the country; but in my late journey from my mountain homestead to the coast, I was gratified to perceive that a better system was likely to prevail. Here, too, the culture of cotton is different from that near the sea. Manure is used, but more sparingly; and the usefulness, not to say necessity, of a rotation of crops, is beginning to be understood and acknowledged. In the upper districts, where the summers are too short to admit of the cultivation of cotton, the farmers raise corn, wheat, rye and oats. They are be-

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ginning to pay some attention to the cultivation of the grasses, and to the improvement of stock, and will, I doubt not, succeed in reclaiming their worn out lands and improving their cattle.

In the low country of South-Carolina there is an abundance of shell lime, which is not as much used for manure as it ought to be. Of its beneficial effects upon our sandy lands, I can speak from experience. In the middle country there exist on the banks of the rivers inexhaustible beds of marl; but in the upper country, marl has not yet been discovered, and limestone only in the favored district of Spartanburgh, where it abounds, although little used for agricultural purposes.

Our cattle have lately been improved by importations from Europe; and I saw at the cattle show held in Columbia last month, as fine a collection of horses, mules, black cattle, sheep and hogs, as could be exhibited in any part of this country. This improvement is confined, however, to that district.

This rapid view of the agriculture of South-Carolina will be sufficient to convince you that to treat such a subject properly will require more time than has been afforded me. Another year it will give me great pleasure to comply with your request.

I have the honor to be, dear sir,

Your obedient servant,

J. R. POINSETT.

H. S. Randall, Esq.

Cor. Sec. &c., Cortland Village, N. Y.

AGRICULTURE OF PENNSYLVANIA.

To Henry S. Randall,

Cor. Sec'y. New-York State Agricultural Society.

When we consider the immense resources of Pennsylvania, in mineral treasures, in addition to her agriculture, manufactures, and commerce, who, as a Pennsylvanian, inflated with all the vanity and vaunting of former days, on account of inhabiting the keystone of the arch of this great republic, once ranked as the first in the confederacy, in point of population, wealth, agriculture, &c.—what citizen, I repeat, does not feel an humbled sense of State pride, to be now forced to acknowledge an empire State, superior in population, and also in the aggregate amount of her agricultural productions, with an admirable and enviable

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system of common schools, while her adjoining sister on the west, although not quite equal in population, yet if we may be guided by the late agricultural census, we find her in one important staple, some 3,000,000 of bushels ahead, as a wheat grower!

The fact, that this great State is prevented only by operating causes and obstacles, from occupying that exalted position in our confederate family, with the advantages which God and nature designed, cannot be disguised. We very naturally trace these causes to a mal-administration, or ruinous policy of State management, or State legislation. Dragged down now, and embarrassed by a debt of $41,000,000, growing wholly out of a most wasteful and improvident system of State improvements, for which, the repairs and expense for conducting them, exceed, according to a report of the canal commissioners, the income from tolls $1,000,000; this amount added to the interest on the whole debt, makes a sum of $3,000,000 annually to be raised, by no other resource than a direct and heavy tax upon the people, bearing of course, mainly upon the farming portion of our community. Unlike her sister on the north, completing at any cost, one main line connecting the west with the seaboard, and then constructing paved and other good common roads, to operate as lateral branches, along the great thoroughfare, to insure a large transporting business, and consequently a large amount of tolls, to pay interest and principal of the cost of the work. Here in Pennsylvania, those lateral branches, traversing the interior of the State, are nothing short of canals and railroads, completed at an immense cost; where, although the amount of transportation is small, yet attended with the same expense proportionally as the main line, they are, as the most ordinary comprehension might have foretold, unproductive and ruinous. If this onerous State debt, in its mischievous effects, would stop here, by merely cramping and paralyzing agricultural enterprise, it would be well. But the greatest calamity is, that a general system of common schools has been vigorously engrafting itself on the ruins of the old pauper system of this State; which now, before public opinion has scarcely had time to swell the current in its proper channel, is in danger of being chilled, and may eventually freeze up, on account of the anti-debt policy, now likely to seize the minds of the people.

Then, instead of this State uniting (as she might have done) wealth with an educated and enlightened population, there is now actual danger, that we may have poverty united with ignorance!

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So, Pennsylvania may be viewed in the attitude of a strong man, chained and manacled; the result of his own sad management. Nothing, now, short of Roman virtue, and Spartan nerve and firmness, can restore and elevate her. Pity, that a free people should suffer themselves to be governed too much! The present condition of this State seems to require that an article under the above caption, should be prefaced by some remarks on her financial affairs, and the state of her education, as intimately connected with her agriculture, present and future.

Agriculture, as yet, may be said to be little studied as a science, in this State; but there is certainly a better disposition developed, in view of that object. The "Farmers' Cabinet," published in Philadelphia, and established some six years ago, is the principal, and perhaps the only agricultural publication in the State; one or more were commenced in the interior, without success. Agricultural periodicals are read with much interest, by professional gentlemen here, to whom we must look for assistance in elevating the standard of agriculture in this State. There has been no effort made to establish a State Agricultural Society. The subject has not been introduced to the Legislature, excepting through casual reports, made by the usual committees of the legislature; that of Mr. Harper, of the Senate, in 1837, was to the point. The Philadelphia Society for promoting agriculture, may be dated back to 1785, the first organized in the United States. It has, in the mean time, "gone up and down." At present, however, it is flourishing, and is much aided by the "Cabinet." The Chester and Delaware County Agricultural Society, of a more recent date, promises fair to do much good. Societies similar to these have been organized in several of the western counties of the State. Here in Lancaster county, although unquestionably the richest in an agricultural point of view, yet its German population must first imbibe some of the spirit for education, which now pervades their fatherland, in Europe, before much support to an agricultural society can be expected. True, we have a mixed population, some of whom, are ready to move in the matter; but it will be better, perhaps, not to agitate it prematurely, until it can be supported with credit and zeal.

Pennsylvania was the first State in the Union to use lime and gypsum, as fertilizers, and it merits, unquestionably, the praise of having constructed the first stone turnpike in the United States; that from Lancaster to Philadelphia, sixty-two miles, completed by a private company, in 1794, at a cost of $465,000.

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Pennsylvania, in a geological sense, is characterized by a division of secondary and transition formation, excepting a small portion of primitive, in the southeast end of the State. Some geologists contend that we have no well defined primary rock, in the whole State.

While the population continued more sparse, it was not uncommon to see large portions of thin soil run over by the French pioneer system; which, failing to produce on their depleting plan, after a series of crops, was thrown out as commons, or old field. It is matter of interest now, with a more dense population, to see those commons enclosed, and made productive, chiefly by the free use of lime. This manure, being spread on the surface, has sufficient specific gravity to work in; after one or two years, the ground is cultivated, and a rotation of crops commenced. Lime, on these soils, is so effective, that the farmers count on an extra bushel of corn for every bushel of lime. Here I allude, of course, to the poor lands, destitute of carbonate of lime and the constituents of the cereal grains.

The farmers of New-York may form some idea of the use made of lime here, as a manure, when I state that I burn at my own kilns, only three in number, containing from ten to fourteen hundred bushels each, about 40,000 bushels in a year, and there are in the neighborhood some half dozen persons who burn a like quantity; some of which is hauled more than thirty miles, into the southwest of Chester county, and to Cecil county, Maryland. Lime is usually applied, at a rate from thirty to fifty bushels on poor lands, and from sixty to one hundred bushels, on good limestone land. The former practice, of spreading it fresh, in its caustic state, on ploughed ground, preparatory to planting or sowing, is fast giving way to the plan of throwing it in conical piles, to slake and carbonate, after which it is spread on the sod, as a top dressing for permanent pastures, or to lie a year or two, before the ground is ploughed. Lime at the kilns here, is sold at ten to eleven cents per bushel, and as high as twenty-six and eight cents, delivered thirty miles. The value of our first rate land in this county, may be stated from $100 to $120 per acre, according to the value of improvements, convenience, water, &c.

In Pennsylvania, it may be said there are three different systems of husbandry practised.

1st. The cropping system; the usual custom is, to plough a sod field, in the fall or spring, for corn, which is cut up at the ground, fol-

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lowing crop oats or barley, then manured and put in wheat; after which, it is put down to grass, generally clover, without and with timothy. Clover fields are usually ploughed and sowed in wheat, and make the most certain crop; the following crop, if manured, wheat, and if not, sowed in rye and seeded down to grass. This system is the most laborious, hence it is uniformly adopted by the German farmers, on our best lands.

2d. A mixed system. This system is being adopted in some sections, suitable for it. A portion of the farm is set apart, well watered for permanent pasture, which receives a triennial top dressing of lime, compost, or short manure. Green grass (Poa viridis,) naturally obtains, on our strong, calcareous soils, when not broken up by culture, and is decidedly the best grass for fattening. The balance of the farm is conducted, in all respects, as stated in the first named system. This plan I consider *best*, and of course adopt it on my own farm.

3d. This is called the grazing system, and is uniformly adopted, in the eastern counties, near Philadelphia, for dairy purposes and feeding off cattle for the shambles. There is very little farming or ploughing done in this system; merely enough grain raised for the consumption of the family and stock; balance of the whole farm is appropriated to pasture and hay. Few horses are kept, where this system prevails, oxen being substituted, on the score of economy and profit.

In some of the extreme western counties, stock raising is made the principal business, particularly in Green and Mercer counties, the soil there being adapted to grass. The stock, cattle and sheep, are driven east and sold in Lancaster and Chester counties, to be fed off.

Western Pennsylvania is rapidly improving in agricultural products; raising, according to the late census, about 2,000,000 bushels more wheat in a year than eastern Pennsylvania; the extent of wheat land being far greater west, than east of the mountains. Western Pennsylvania was formerly poorly cultivated, but is now rapidly improving and will far excel us, here, in the eastern part. While we, here, are confined to the Philadelphia market, they of the west have the choice of Philadelphia, Baltimore and Pittsburg, by canal and railway, while the Ohio and Mississippi bear away much of their surplus produce to New-Orleans.

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Beet and turnip culture was commenced in this State with considerable spirit, but few continue now to advocate root culture, further than potatoes; like, *and indeed* not unlike, the multicaulis mania, our shrewd and more discriminating farmers allege that both have proved to them, like "faith without works." Draining and reclaiming bogs and swamps, afford another resource to us, which our forefathers overlooked, which we find best performed by operatives, fresh from the Emerald Isle.

The commerce and manufactures of Pennsylvania, particularly in iron, salt and coal, are very considerable, from which her agriculture must ever receive a vigorous impetus. The anthracite coal of Pennsylvania is confined to three main beds, or coal fields, extending from the Susquehannah, crossing Schuylkill county east to the Lehigh river, a distance of forty miles, and divided by three ranges of hills, known as the 1st, 2d and 3d mountains. The average breadth of these coal beds is about two and a half miles, making in the aggregate, three hundred square miles, although of limited surface, yet surprisingly fertile in coal, a supply sufficient perhaps for all ages to come.

But if the anthracite coal region of Pennsylvania is of small extent, the bituminous coal strata cover nearly one-fourth of the State, lying in horizontal layers, and truly abundant. All England and Ireland, it is said, contain about 2,000 square miles of coal land; the State of Pennsylvania has ten times that quantity, *at least*, and equally productive in coal and iron. What should hinder us, here, from imitating British enterprise, and manufacture at least *our own iron?*

I am admonished by my sheet to close, while my subject is merely glanced at. I have given a mere abstract sketch of Pennsylvania agriculture. My business engagements, too, preventing me from preparing the article with that care, and putting it into such form as I should, under more favorable circumstances. If too lengthy, it may be dissected.

Respectfully submitted,

W. PENN KINZER.

Springlawn Farm, Pequea, Lancaster county, Pa.

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AGRICULTURE OF VIRGINIA.

Essex County, Va. January 15th, 1842.

To HENRY S. RANDALL, ESQ.

Cor. Sec. of the New-York State Agricultural Society.

DEAR SIR—For many weeks past I have been so busily engaged, that I could not sooner find leisure to comply with your flattering request to prepare some article for the volume of husbandry which you informed me would soon be published by your Society. Even now I fear that my communication must fall far short of your expectations in particularity and accuracy, since I must rely chiefly upon other sources than my own personal observation, for much of the information which I shall endeavor to give you.

Of the two subjects, on one of which you have expressed a wish that I would write, I have chosen "*The Progress of Agriculture in Virginia,*" although to do it full justice would require a personal examination of nearly all the one hundred and twenty counties of our State; whereas there are many that I have never visited, whilst my occasional travels through several others have been too hasty to enable me to speak in any other than general terms of the present condition of their husbandry. For many years, however, I have continued, as often as opportunities occurred, to inform myself on this subject, as well as I could, both from my own observation and diligent inquiries, and the result of these investigations is what I now intend to offer you.

To judge well of the progress of Virginia agriculture, it would be necessary that the examiner should be well acquainted, not only with its present but its past condition for many years back; since he who would make up an opinion from any shorter experience, would form but a very inadequate idea of what that progress really has been. Previous to our revolutionary war,—as I have been told by the farmers of that day, tobacco was our only staple crop, and this was cultivated in such a manner as rapidly to impoverish our lands; at the same time that the cutting down process was carried on in so wasteful a way as to destroy, over a vast extent of country, immense quantities of their most valuable timber. Indian corn, now the great staple of our tide water country, was scarcely cultivated for sale, whilst wheat was raised chiefly in what were called "*patches.*" Barley, rye and oats, were

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raised in still smaller quantities, and cotton was very little used, even for household manufactures. The cleared lands were worked, either every year without rest, or in "three shifts," (as it was called,) and without any regard whatever to a rotation of crops. No attempts worth mentioning were made to collect manure for general purposes, all that was deemed needful being saved for the gardens and tobacco lots, which were kept up, if they had been long cultivated, by summer cow pens. These were filled with cattle, such as our modern breeders and amateurs would hardly recognize as belonging to the same species with those upon which they are now lavishing (if I may presume so to speak) such an undue proportion of their time, labor and money, as to bestow less on other branches of farming than they ought to do. But this consideration it is entirely useless to urge whilst the present passion for importing cattle at the enormous prices now given for them is kept alive by the ever active spirit of speculation, rather than by the much slower, more considerate, but patriotic desire to improve generally the farming stock of our country. Pity it is that the true* motives for importing anything in the farming line should be so often confounded, since it constantly exposes the unreflecting portion of our brethren to humbugs of some kind or other. But let me return to the cattle of the olden time, of which I have a few more reminiscences to add. In those days they were so utterly neglected that it was quite common for the multitudes starved to death every winter, to supply hides enough for shoeing the negroes on every farm. This was a matter so generally and constantly anticipated, that my own grandfather, as I have heard from unquestionable authority, was once very near turning off a good overseer because cattle enough had not died on the farm of which he had the supervision, to furnish leather for the above purpose. When any cattle were fattened for beef, almost the only process was to turn them into the corn fields to feed themselves. Sheep and hogs were equally neglected, no particular breed being ever thought of, as entitled to much preference, nor regarded any farther than as means of furnishing wool and meat for the family of their owners. The worst, however, of these hogs, were really better than the ludicrous caricatures which have been published of them by Mr. Curd and others, under the nick-names of "alligator and landpike." These will do very well to laugh at, and to aid the popularity of the modern breeds with which they are so amusingly contrasted; but as true representations of actu-

* Our patriotic importers, I hope, will not take any part of these remarks to themselves for I assure them they are aimed entirely at others.

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ally existing animals, I must say, so far as I can judge, that there is nothing which much resembles them among all the quadrupeds which have ever fallen under my observation. Still, if no better or more truthful means can be found of shaming our careless brethren into raising better breeds of hogs, let the caricaturists persevere, and I shall most heartily wish them all the success they desire.

In the times of which I speak, horses were the only stock much attended to, and upon these a vast deal more care and money were expended than upon all the other farm stock put together. Indeed, the expenditure was wasteful and extravagant in a highly culpable degree.

For many years, even after the revolutionary war, our husbandry remained much in the condition above described, until at last one of our truly great men, Col. John Taylor, of Caroline, great by nature, not by the puffing of political party newspapers, (which of late years has made them as plenty as blackberries,) published a little work on agriculture, called "*Arator*." This rapidly passed through four editions, all of which he gave away, and contained so much, both of instruction and amusement, although blended with some error of opinion, as to excite at once a spirit of agricultural improvement so extensive and active in its operation as justly entitled him to be called the father of Virginia agriculture. The influence of this work lasted for many years, and when it began somewhat to abate, there appeared among us that excellent work, "The American Farmer," edited and published by Mr. John S. Skinner, of Baltimore. This, I believe, was the first agricultural paper published in the United States, and was so ably conducted for fifteen years, when it passed into other hands, as to obtain a very extensive circulation in Virginia, and effectually to revive that spirit first awakened by "Arator." To the effect of Mr. Skinner's paper I think we may truly attribute the spread of agricultural societies among us; for they increased very rapidly soon after the American Farmer made its appearance, and continued to make a considerable display, at least in our newspapers, for some years, when they almost as speedily declined, from what cause I know not, unless it is that our people are deplorably deficient in what we call "*bottom*" in our race horses, for heretofore they have certainly proved themselves "short winded" and soon have tired in regard to their agricultural societies, if in nothing else. At one time these associations died off so fast that I began to fear their total extinction was close at hand. But fortunately for us, just then appeared that truly valuable paper, "The Farmer's Register," by Edmund Ruffin,

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Esq. of Petersburg, Va. which was soon followed by his excellent work on calcareous manures. These gave a new impulse to our brethren, which has been on the increase ever since, and is now so generally diffused as to afford strong hopes that it will be permanent; in other words, (if I may again trespass on the jockey vocabulary,) that it will acquire for us a high reputation for "bottom" as well as "heels," in our agricultural pursuits.

Among other circumstances which have given rise to these hopes, at least in myself, I will here state, that another very good agricultural journal called the "Southern Planter," commenced in Richmond, Va., twelve months ago, by Mr. C. T. Botts, has already obtained a considerable circulation among us; and that your Albany Cultivator, than which there is no better paper, has more subscribers in Virginia, than in any other State in the Union, except New-York. Several other agricultural papers also now circulate in Virginia. This, I think, is proof positive that a taste for scientific agriculture, without which there can be no perfect practice, is rapidly advancing among us, and that our farmers and planters, although very few of them can yet be called scientific agriculturists, are earnestly and zealously engaged in using the right means to become so. The consequences show plainly, that our progress in almost all the branches of husbandry, but chiefly in agriculture, is very considerable; although to be convinced of this, we must view it in the aggregate, rather than in its parts; for there are still to be seen several portions of our State wherein, if one of our Rip Van Winkles was to be roused from a fifty years' sleep, he could hardly be persuaded that his nap had lasted more than 24 hours, were he to judge from the present appearance of every thing he would see around him. He might perhaps imagine that there was less wood and more worn out land left to grow up in bushes and broom-straw, but this would be the only noticeable difference.

It is true that these disgraceful proofs of bad husbandry have greatly diminished since I could first remember. But it can not truly be denied, that some are still to be seen; for we still have among us many of that class of farmers so happily described by Miss Edgeworth, under the soubriquet of "Goodenough," in her admirable story of "The Will." Their characteristics are ignorance, obstinacy, and self-conceit, existing in so great a degree as to bid defiance to all attempts at enlightening their minds in regard to any branch of husbandry, for they appear wisely to believe themselves perfect masters of the whole. They

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have such an utter contempt for all agricultural books, that nothing could persuade them to subscribe for an agricultural paper, and still less to read one; for they swear that these papers contain nothing but a parcel of lies, and wild visionary notions. If any of their neighbors who study such works, should happen to fail in their experiments, it is immediately ascribed to "*book-farming*," whilst all the instances of their success are attributed by these wiseacres to what they call "*luck*," a word of such comprehensive meaning in their vocabulary, that it suffices them to account for nearly every thing which occurs either to themselves or others. One of their favorite opinions is, that all kinds of farming stock, except horses, are endued with a sort of natural sagacity or instinct which enables them to choose for themselves in bad weather, much better shelters than their owners can provide for them. Hence their cattle, hogs and sheep, in almost every case, are left to shift for themselves, and the consequences are such as all men, but the Goodenoughs can easily foresee. Would you seek for ocular proofs? Look at their farms about the months of March or April, and on most of them you will behold a spectacle sad enough to move the pity of any person who can feel for brute beasts subjected by the reckless inhumanity of man, to an almost constant state of severe suffering. The evidences of this inhumanity—this suffering, are to be seen in hogs, half dead with the mange, contracted by sleeping in the fresh litter of the stables, and starving the greater part of their time; in sheep that long before shearing time, have saved nearly the whole of that trouble to their Goodenough owners, by dropping a large portion of their fleeces in the fields, and have prevented an over stock of lambs by yeaning them in situations convenient to the politic troop of buzzards, which may always be seen hovering over them at such times, in greedy anticipation of their customary feasts; and in cattle, heaven help them! for men will not, with their backs arched as much as their spines will admit, and all four feet drawn under them, to balance themselves, as it were, lest a stronger wind than common should place them in a situation which we call "*being on the lift.*" I know not whether you northern farmers understand the meaning of this phrase, and I will therefore inform you, that we apply it to cattle that have fallen down from utter inability to stand, and of course are unable to rise without being lifted up again. This, by the way, was a catastrophe of no unfrequent occurrence in my boyish days, and even now, may often be seen in the spring of the year, on some farms such as I have been describing.

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Having exhibited to you the worst view of our husbandry, I must assure you, that some change for the better is gradually taking place, even in these "benighted corners of the earth;" although a stranger to our former condition would probably be somewhat incredulous, and be apt to ascribe the assertion to my partiality for my native State. But I have voluntarily incurred the risk, and will now endeavor to introduce you to far better and more cheering scenes—scenes which have been made such by the skill, industry and indefatigable perseverance of that numerous class of our brethren who may truly be called improving farmers. These are all, so far as I know and believe, without a single exception, men who are firm believers in the necessity of studying agriculture as a science, in order to secure success in practice. All consequently take and diligently read agricultural papers; all are thus so open to conviction as to be ready to give up any preconceived opinions, when they find them to be erroneous; and by these means are annually reaping the sure rewards of such a course, in the continual improvement of their farms. Many of these, perhaps the greater part, have been restored from a state of almost hopeless impoverishment, to a degree of fertility rapidly approaching, if it does not equal their primitive condition. This has been affected in that portion of Virginia, above the head of tide water, chiefly by the application of lime, gypsum, clover, vogets, animal manures and deep ploughing. Below this line the same means have been more or less used, with the addition of the grass washed up by the tides as you approach the mouth of our rivers, the Chesapeake and the sea-board; and also of marl, which although now found almost every where from the head of navigation to our bay, was never used to any extent, until Mr. Ruffin's excellent work on calcareous manures set every body to looking for it. But even now, there are some farmers so utterly neglectful of all the means of agricultural improvement, as not yet to avail themselves of this sure resource, although they have it, as it were, under their noses. Much of this marl, especially in the counties bordering on the Chesapeake, is so strong as to contain 80 per cent of carbonate of lime, and to be so accessible as to require scarcely any labor in digging and transportation. I should have excepted plaster of Paris from the above enumeration, as it is not used near the bay, from a belief that on lands adjacent to salt water it has no effect.

Among the means of improving our lands, rotation of crops is not yet much resorted to. This probably is less owing to any doubt of its

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efficiency, than to the fact that most of our farmers being in debt, they are afraid to incur even a temporary diminution of their crops, by lessening the size of their fields. The number of those fields in general, does not exceed three, at least in the tide-water portions of Virginia. And yet, scourging as this system appears to be, such is the kindness of our soil, that if the corn fields are manured, and clover sown with the wheat, they certainly hold their own, if they do not rather improve. In regard however, to clover, it is much to be regretted that many are deterred from sowing, as much of the seed, which we procure chiefly from other States, as they otherwise would sow, because it is so frequently mixed with the seeds of some one or more of the following pestiferous plants: St. John's wort (Hypericum perforatum,) prickly night shade (Solanum carolinense,) camomile or white daisy (Chrysanthemum leucanthemum,) blue thistle (Achium vulgare,) trumpet flower (Bignonia radicans,) and wild carrot (Daucus carota.) As there is a very simple method which may not be generally known, of discovering when clover seed is mixed with other seeds, I will here mention it. This is merely to wet the end of your finger and immerse it in the seed. The wet finger will immediately be coated over with as many seed of every kind as touch it, but so separated from each other, that the naked eye can easily distinguish the several kinds.

As to the soil of Virginia, it is so diversified that no general description will give you an adequate idea of it. We have, I believe, every variety mentioned in the books; and even on the same farm it frequently happens that the soil varies considerably from a very stiff to a very light texture. If I may venture upon any general classification, I would state, that sandy soils predominate from a few miles below the heads of our tide-water streams down to the Chesapeake, and across the counties of Accomack and Northampton to the sea shore. Some of those soils are so light that a strong wind, in very dry weather, will frequently raise such clouds of dust as to resemble at a distance the smoke of an extensive and raging fire. On one of those occasions, at a time when party politics ran higher than usual, I recollect a very humorous fellow advising a neighbor of mine, who was a most zealous politician, to claim a right to vote in a county separated from his farm by a wide river, on the ground that enough of his land had been blown across to give him a freehold. These lands might almost be cultivated with wooden ploughs; of course the horses or mules are very generally worked single, even in the first ploughing, although two together are

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sometimes used. Light as such lands really are, they produce surprisingly in Indian corn, before they are worn out, although they yield much less of the smaller grains than stiffer lands, which apparently are not more fertile.

Our stiff soils commence a few miles to the east of our first range of mountains, and extend, with very few exceptions, I believe, to the western limits of the State. They differ, however, somewhat both in texture and color, a large portion of them, when wet, being nearly as red as any red paint, and almost as adhesive as tar. Other sections of the country are of a reddish brown color. Neither kind has any sand that the eye can detect. Both are stiff, much mixed with stone, and usually require three strong horses in a plough to fallow them up; but they are said to be highly susceptible of improvement by lime and gypsum, more so, indeed, than our tide-water lands, although these also are manifestly benefitted by both substances, when judiciously applied; that is, where there is some cover of vegetable growth, or vegeto-animal manures, to plough in before the lime or the gypsum is strewn on the surface.

In relation to the products of our soil, I had hoped that our late census would furnish me with some useful details; but it abounds with such gross errors, at least in its agricultural statistics, that I deem it best not to rely upon such a document. My own information, therefore, must guide me in what I shall say on this subject, although it is not extensive enough to enable me to give you more than a general view.

Our staple crops are Indian corn, wheat, tobacco and cotton; although several others are partially cultivated, such as rye, barley, oats, Indian peas, white bunch beans, sweet potatoes, and the castor bean, or palma christi. Irish potatoes and turnips, of different kinds, carrots, parsnips, mangel wurtzel and sugar beet are beginning to be cultivated, but only by a few farmers, and not for market. In the tide water portion of Virginia, the average product of Indian corn per acre does not, I think, exceed 15 bushels, although 8 or 10 times as much has been raised on a few farms. The general distance at which it is planted is 5 feet one way, and at various shorter distances the other way, according to the fertility of the soil. From one to two stalks in a hill are usually left on high land, but on rich, wet, low grounds, the number varies from two to four. The common culture is to throw the

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land into beds 5 feet wide, with two horse ploughs, before planting, and afterwards to give the corn two or three workings with one horse ploughs, 2 and sometimes 3 with hand hoes, and to finish with skimmers, harrows, or cultivators of some one or other of the various kinds now in use. Some farmers plough their corn both ways on high land, and never use the hand hoe. It is common to soak the seed before they are planted, in warm water, with which tar has been mixed, at the rate of 1 pint to 15 or 16 gallons of water, and then to roll it well in slacked lime or plaster, which protects it from the birds and moles. In securing the crop it is still the general practice first to strip the blades, which, when properly cured, make a provender containing more saccharine matter than any kind of hay; then to cut and cure the tops, which also make excellent provender if chopped in a cutting box, and next steamed and mixed with a small quantity of any kind of small grain, ground; lastly, to cut off the stalks with the ears before sowing the wheat on the same land. This is still done by a great majority of farmers in our tide-water country; although the general practice beyond the mountains, and for some short distance to the east of them, is to fallow for wheat. There is another part of the corn plant yet to be noticed, which many believe to be quite as valuable as the blades and tops. This is what we call the "shuck." It is the covering of the ear, and when chopped in a cutting-box, steamed or soaked in hot water, and mixed, after the water is drained off, with a small quantity of corn meal, has been found to keep horses in better order than a larger quantity of corn and blade fodder fed in the usual way.

The average crop of wheat in all that portion of the State of which I have been speaking, can hardly be estimated higher than 5 bushels per acre, if so high. For many years this crop has manifestly declined, both in the quantity per acre and the quality. Some charge this to the hessian fly, which is still a great pest to us; others attribute it to an unfavorable change in our climate; whilst a third set of conjecturers ascribe it to the general exhaustion in the soil of the particular pabulum of the wheat plant, which can be restored only by animal manures. All these causes probably contribute, but the last, I suspect, more than the other two, for we get nearly or quite as much wheat straw as we formerly did, although less and very inferior grain. The same complaint is general even among the farmers in those parts of Virginia best adapted to wheat. These are the valley country between our ranges of mountains and the country immediately below. A similar deterioration of the rye crop also has occurred wherever it has been cultivated.

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In harvesting our wheat and other small grain, a practice generally prevails in middle and lower Virginia which will probably surprise you. We very rarely ever *bind* the crops as they are cut down, but rake them up loose, and either cart them immediately to the stack yard, or stook them in the fields in stooks containing from 2 to 4 bushels of grain. It is common to soak seed wheat in brine, and roll it in plaster or lime before it is sown.

The average of the tobacco crop is generally computed at about 900 weight per acre; but the tobacco planters insist that even at this average they can make more money by it than by any other crop, and that it exhausts land much less than it is commonly supposed to do by those unacquainted with its culture. About 50,000 hogsheads is believed to be the average annual crop of Virginia.

The cotton crop is not estimated higher, I believe, than four or five hundred lbs. in the seed, per acre, although I have heard of 1,800 lbs. being made on the James river. It is, however, a crop much less adapted to our soils and climate than to those further south and southwest of our State; our southern counties only, cultivate it for sale. Both cotton and tobacco are worked with single horse ploughs, cultivators, and hand hoes.

Of the other crops which I have mentioned, the Indian peas, white bunch beans, and palma christi have each been occasionally very profitable, particularly the latter, which once sold as high as two or three dollars per bushel, whilst white beans commanded $2, and Indian peas $1.25; but the prices proved too fluctuating to justify their continued culture as regular crops. The cultivation of sweet potatoes is becoming more general, particularly in the counties bordering on the Chesapeake. This root is thought to be more certain in coming to perfection, and more productive than the Irish potatoe, as well as far more nutritious than any other root given to stock; but I have never heard of its being analyzed, although it is very desirable that it should be.

I have said nothing of the staple crops of the valley of Virginia, or of their averages per acre, having but little personal knowledge of them; but I know that the farmers of that country estimate them higher than ours. I believe they are correct—at least as to small grain and artificial grasses—for their soil and climate suit all these crops better than ours. In regard, however, to Indian corn, it certainly yields more

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per acre on land of equal fertility, in the tide water portion of Virginia, than above it. But this crop in the valley is not cultivated for market; it is usually fed away to cattle and hogs, of both which they fatten a number for market that is annually increasing. Wheat is their chief staple, and more land is devoted to its culture, since the railroad from Harper's Ferry to Winchester was finished. This has greatly increased their facilities for transporting bulky articles to market, and has thereby much augmented the actual value of their lands to a considerable distance from the road.

From the low averages which I have given you of the staple crops in middle and lower Virginia, you will probably form but a poor general estimate of the progress of husbandry in our State. Nevertheless, I can assure you that in the aggregate, it has been very great in the last ten or twelve years; and that, during the last two or three, it has advanced almost at a geometrical ratio. But this advancement, where it is most conspicuous, is still so partial and confined to particular neighborhoods, and so slight elsewhere, that strangers who have no personal knowledge of our State, can not form a correct opinion, merely from hearing what is supposed to be the general average of our agricultural products per acre. To judge well of the whole extent and amount of our progress in husbandry, they should know the past as well as present condition thereof. They should see the best as well as the worst of our farms; they should examine those around our towns, on some of our navigable rivers, in the valley of Virginia, and in several of the counties immediately below our first range of mountains. Then, indeed, they could decide, as our Congressmen say, "*understandingly*" on the subject; and such an examination, I am confident, would discover to them many farms as well managed, in every respect, as any in the United States; although, in proportion to our whole territory, the number would probably be smaller than in some of the States north of the Susquehannah.

In nothing connected with our husbandry have we improved more than in our agricultural machines and implements; although it is much to our discredit that we still import from other States the greatest portion of our ploughs, hand hoes, spades, axes, and all our scythes and reap-hooks, notwithstanding we have abundance of iron, coal, and skilful mechanics to use them. We have, however, several manufactories of ploughs, and some of axes, which are fast supplying the adjacent counties with those articles, of good quality. One of these

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ploughs, called the McCormick, after the patentee, is in high repute with all who have used them, and it is, I think, superior to any plough, at the same price, that I have ever seen. Our wheat machines, which are all of the spike kind, are manufactured chiefly in Virginia: so, also, are our straw cutters and corn shellers, although some are still imported from other States; and, strange to say, we import many, even of such small and easily made articles as axe helves, snaths, rakes, grain measures, wooden churns, tubs, pails, buckets, and bowls!

I have reserved for the last, what I have to say of our farming stock. Our chief attention has been devoted to horses, and so much of it to the racing stock, that other fine horses are scarcer than they were 20 or 30 years ago. Such as are used for farming purposes are purchased principally from our northern counties and Kentucky, which State also supplies us with most of our mules. These are more used than horses in middle and lower Virginia, but are deemed too light for our upper country. But few imported cattle, hogs, and sheep have yet been introduced into our tide water counties, although some have been bought by farmers living near our towns. This, I believe, has not proceeded from any doubt of our native breeds being very susceptible of improvement by such crosses; but most of our farmers are such poor arithmeticians that they have not yet been able to cipher themselves into the notion of its being a profitable investment to more than a very few of their brethren, if to them, to give from seven to twelve hundred dollars for a bull or a cow—from three to five hundred dollars for a sow or a boar, and nearly as much for a ram or a ewe. Many are willing to purchase, at double, triple, and even quadruple the price per head of their native stock; but beyond *that*, I have heard of scarcely any who are willing to go, except in our valley country, where, I have understood, there are a few importers who have given as high prices as have been paid even in Kentucky. In middle and lower Virginia, we are still most shamefully negligent in regard to all our farming stock. As a proof of this, we do not generally obtain from our farms either beef, butter, pork, or lard enough for our own use. The two first we procure chiefly from our transmontane counties, and those immediately below, whilst our supplies of the two last articles come principally from Kentucky, although some bacon and lard are brought from our upper counties and Baltimore. Candles are also imported in considerable quantities from other States.

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As for dairies, in the parts of Virginia with which I am best acquainted, they are things (as the lawyers would say,) rather "*in posse*," than "*in esse*"—things to which our some-other-time farmers look in their waking dreams, rather than such as they actually enjoy. I doubt whether there is one in a hundred of our ordinary farmers who owns such a thing as a dairy, or would know how to construct one properly, if he were to attempt it. Among all such managers, butter is an article quite as scarce, early in the spring, as if it were really prohibited by law; for at such times it often happens that neither love nor money can procure it.

Some of my brethren of the Old Dominion, should they see or hear what I have just written, will probably cry out against me for telling such tales out of school; but having always believed it to be a much easier matter to cure malpractices in husbandry—at least such as proceed from sheer negligence—by shame, than by reason or persuasion, I have risked their displeasure, from the hope that my remarks may possibly urge them to mend their ways.

With earnest wishes for the welfare, both of yourself and your Society,

I remain, dear Sir,
Yours, very respectfully,
JAMES M. GARNETT.

ENGLISH AGRICULTURE.

A glance at its progress and prospects.

By John Hannam, *North Deighton, Wetherby, Yorkshrie, England.*

The paramount importance of agriculture, as a producer of national wealth, its capability of rendering a people independent of others for the means of life and enjoyment, have always entitled it to take the first rank in a nation's estimation. And, although it has not always secured this estimation, we shall find, if we examine carefully the records, both of sacred and profane history, that the policy which has sanctioned this neglect, has caused the ruin of the best interests of the country.

But although this truth has been open to the eyes of the world for ages, it is an extraordinary evidence of the perversity of human intelli-

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gence that it is only within, comparatively speaking, a few years, that it has been perceived, or at least acknowledged, so as to be acted upon in England. The effect, however, of this knowledge has been so magical, yet so palpably evident; the improvement and extension of agriculture, as a practice, has been so rapid, and its advance and estimation, as a science so great, that it would be a labor worthy of the ablest pen to trace that progress, because it is a labor that would be fully appreciated by every inquiring mind. Composed, however, as such an inquiry should be, of a history of its condition, principles, practice and statistics, and that too, in a country where an endless variety of soils, seasons and climate combine to make exceptions to every principle, to vary every practice, and to mystify every calculation, it would seem to be a work which, if not above the power of an individual, would require every assistance that time and talent could secure him. To attempt, then, had we the ability requisite, to give such a history, of even one branch of the subject, in a paper like the present, and that too, in the few days which circumstances over which I have no control, (I am now writing at exactly one month from the day, yet more than four thousand miles from the place of publication,) I am able to give to its consideration, would be absurd. Yet, although the comprehensive nature of this subject prevents any attempt at such a view of it, it is attended with one advantage, its high importance will give, even to this cursory "glance," which it would not otherwise possess. That this interest will not be entirely wasted, I have the presumption to hope. Information is the corner stone of *interest*, and few inquiring minds can be led to the view of any subject in its past and present phases, without making some lesson for the future.

In entering upon the first part of our subject, the progress of English agriculture, the course that suggests itself to us is to divide it into those marked epochs of transition, or change, which are discoverable in the progress of every thing connected with, or influenced by, human nature; and to look at the spirit pervading the practice at each period. Taking, however, a general view of the subject, we observe but one period of *marked transition;* a change from a state of things under which agriculture languished for hundreds of years, without making any advance, to one, under which, in fewer months, it has made wonderful progress and improvement. This is the great phenomena that presents itself to us in tracing the progress of English agriculture; and indeed that a science which was necessarily practised and extended

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with the increase of population, should remain, comparatively speaking, stationary; at least, that it should be surpassed by every other art or science, in all approaches to permanent principle; and that, after a torpid existence for more than 1600 years, it should start at once into the vigor of youth, develope, in the course of a few generations, the energies that centuries had failed to elicit, is one of no mean order. In order, therefore, to illustrate this progress it will be necessary for us to look, first, at the practice of agriculture previous to the period of transition; second, at the influences tending to produce a change; third, the result of these influences, as developed in the practice up to the present time.

Of the practice of agriculture in England before the Roman invasion, we find little mention made by historians. We are told by Cæsar that it had made some slight progress in the counties of Somerset, Hants and Wilts; that they grew corn, manured the land, and had abundance of cattle; while the rest of the people led a more savage life, living upon the game of the forest and the spontaneous productions of the earth. After the conquest of Britain, a change took place. "*Wheresoever the Roman conquers, he inhabits,*" says Seneca, (Consolat. ad Helvetiam c. 6;) and where he inhabited, history assures us he always carried the language, the manners, the arts and the vices of Rome. Africa, Spain, Gaul and Pannonia, are, as is attested by Apuleius, Strabo and Paterculus, evidences of the manner in which "the nations of the empire insensibly melted away into the Roman name and people." And Britain, if we may believe Tacitus, was not an exception. Thus, he tells us that Agricola, "to wean them from their savage customs, enticed them with pleasure, and encouraged them to build temples," &c. Also, that, "to establish a system of education, and to give the sons of the leading men a knowledge of letters, was part of his policy," and that by these other means, "they who had always disdained the Roman language, began to cultivate its beauties. The Roman apparel was seen without prejudice, and the toga became a fashionable part of dress. By degrees the charms of vice gained admission to their hearts; baths, porticoes and elegant banquets grew into vogue, and the new manners, which in fact seemed only to sweeten slavery, were, by the unsuspecting Britons, called the arts of polished humanity." With the other arts of Rome, it is but fair, therefore, to presume that her colonists introduced and practised her agriculture. Indeed, it must have been both introduced and encouraged, for we have it from

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the Emperor Julian himself, (*Orat. ad S. P. Q. Atheniensem, p.* 280,) that he at one time freighted a fleet of 600 vessels with corn exacted from the Britons. "And if," says Gibbon, (ch. 19, Decline and Fall of Rom. Empire,) "*we compute those vessels at only* 70 *tons each, they were capable of exporting* 120,000 *quarters, and the country which could bear this must have attained an improved state of agriculture.*"

From these facts, then, it will be evident that if we would look at the condition of English agriculture during the first five centuries, we must turn to that of Rome. Indeed, our reason tells us that, practised by Romans themselves for more than 400 years, it *must* have approximated to that of the mother country almost as much as climate and other differences between the two countries would allow. But although we have no records illustrative of the subject, it is impossible for the fact to be otherwise; for at the period when Rome sent her colonists to Britain, agriculture was, and continued for ages afterwards, to be the most honorable and esteemed of all professions. Her highest characters, amongst whom it will suffice to mention Cincinnatus and Curius Dentatus, employed themselves in the pursuit; and Cato himself tells us that "when they would praise a deserving man, he was called a farmer and a good husbandman." But not only had it attained this estimation as a profession, but had made no mean advance as a practice. Industry and observation had removed the errors of ancient custom, and Cato, Varro, Cicero, Virgil, Columella and Pliny had employed their pens in promulgating its principles. Thus, we are told that they cultivated wheat, barley, oats, beans, pease, flax, lupines, kidney beans, tares, turnips, &c.; also, the vine, olives, &c. Gibbon, too, tells (Dec. and Fall, c. 2,) that "the use of artificial grasses became familiar to the farmers both of Italy and the provinces; and that the assured supply of wholesome and plentiful food for the cattle during winter, multiplied the number of flocks and herds, which, in their turn, contributed to the fertility of the soil." Thus, in fact, they had partly approximated to that system which has enabled the farmer of the present day, by alternate white and green crops, to double the value of his produce and to increase the fertility of his soil.

Of manures, they used those animal and vegetable ones which are at the present day employed. Lime, marl, and various composts were in use. Of the value, too, of liquid manure, and of the injury done to the dung-heap by being too long exposed to the action of the atmosphere, they were conscious, and dug pits in which to store it, in order

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to prevent the double waste. In this, they made a slight approach to the Flemings of the present age, whose careful management of their farmyard manure, and the liquid from it, is worthy of our imitation. A still further knowledge of the value of manure is displayed by the Romans in their burning the stubble, collecting ashes, and even sowing green crops for the purpose of ploughing in. (Varro. 1. c. 3.)

They also used top dressings of hot manures, such as pigeons' dung, powdered, which was put in with the hoe. In the practical operations of agriculture, when we take into account the simple mechanism they employed, they were by no means contemptible. Thus, Pliny tells us that they were particularly careful in ploughing, endeavoring to have perfectly straight and even furrows. They ploughed the land three times over, always before sowing; sometimes taking a furrow nine inches deep, and sometimes only three. On heavy soil, nine ploughings were frequently given. They made a fallow every other year. Indeed it would appear that the advantage arising to vegetation, from the soil being well pulverised, was well known; for Cato being asked, "What is good tillage?" answers, "To plough." "What is the next?" "To plough." "The third, to manure. The remainder, is to sow plentifully, to choose the seed carefully, and to eradicate as many weeds as possible."

For this purpose, the hoe was used liberally. Crops, when too luxuriant were, as now, depastured for a time. The seed was sown in the ridge, as well as the broadcast furrow, a practice now termed "ribbing," and which, with an efficient system of ploughing, if not superior, is equal to the drill system.

Amongst their permanent improvments, draining was esteemed and practised in some degree, if we may judge by the mention made by the Latin writers, of the good effects derived from it, and by the particular directions given as to their construction.

Live stock, in which we include horses, oxen, asses, sheep, goats, swine, geese, ducks, hens, bees, &c., &c. occupied their care and attention. And the various breeds were propagated upon principles, some of which would be well worthy of attention at the present day.

Indeed, let us look which way we will upon the subject, we find the high estimation in which it was held as a profession, an index of its advance as a practice. It is, therefore, fair to presume not merely that

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the Roman colonists introduced a system of agriculture into Britain, as stated by all authorities, but that they introduced the Roman system, and made use of Roman experience in practising it. Reason tells us it must have been so; for facts, some of which we have mentioned, show that she did so, with respect to every other art, science, or custom, not merely in Britain, but wherever she carried her victorious arms.

In the preceding sketch, therefore, of the practice of the Romans, we obtain a pretty correct, and indeed the only view of the agriculture of England, during the first five centuries of the Christian era. It is true that a difference in the climate, &c. might cause some slight variation in the practices of the two countries. But, in the foregoing summary of agricultural knowledge, as practised by the Romans, during the time Britain was a part of their Empire, it will be obvious that we have recorded nothing but what was adapted to England. It would therefore, be fair to infer that every practice there mentioned was adopted. Assuming this, and looking forward for a thousand years, we observe the phenomena which we have before mentioned, as characterizing the progress (if it be not an Hibernicism, so to call it,) of agriculture till a late period. For even if we make the most liberal allowance for a degeneracy in the science, owing to the transplanting it from Italian to English soil, we cannot, till after the sixteenth century, discover the least improvement developed in the practice.

Thus we can find no advance made in the use of tillages, in the construction of implements, or in permanent improvements. The old Roman system of an alternate crop and fallow, or at most, of two crops and a fallow, still held its unquestioned sway. Nor do we discover any traces of those artificialgrasses which Gibbon tells us increased the number of herds and the fertility of the soil. It is possible, however, that the Romans never did introduce these into England, or they could scarcely have gone completely out of use. Owing to this, we find that the principal part of the land was grazed as open commons; while those lands nearest their habitations were cultivated for the growth of corn. The consequence of this was, that as there was no fodder to be had, but such as was grown on natural meadows, the cattle starved upon the hungry common during winter, and the enclosed land, owing to no manure being made, grew gradually less productive. Thus we are told that they experienced the greatest difficulty in keeping their cattle alive during winter; that many died and many were killed (to use an Irish-

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ism) to keep them from dying. That their oxen, too, were so badly fed that it required six to plough half an acre per day; and that four times the seed was reckoned a fair crop, under this management.

Their variety of crops was very limited, oats, barley, rye, pease, being the staple productions. Wheat, the farmers' paying crop, was then very little grown. Thus, Tusser says:

"In Suffolk, again, where *wheat never grew.*"

Even at the commencement of the 17th century, it was a luxury confined to the tables of the nobility of the land.

The most important part of the farmer's possessions, was the live stock. And it only wanted a better system of management in the production of food, to have made him progress in this branch of his possession. Cattle, however, could make but a poor growth on the scanty common pastures, or indeed, upon any pastures during the winter months, and consequently, they were a scarce stock. Sheep could do better upon this method, and this, with the demand for wool, caused them to be kept in great quantities. The neglect of cattle for sheep, had so increased, that we find it ordained, in 1533, that no man should keep more than 2,400 sheep, (25 H. 8, c. 31,) and in 1555, that wherever there were 60 sheep, a cow should be kept; and a calf bred wherever there were 120. (2 and 3, Phil. and Mary, c. 3.)

Nor was its standing as a profession very high. The position of the farmer was that of the humble and contented laborer, and his qualifications were industry and sobriety. Education and research were unnecessary, and consequently unknown. His path was the path of his predecessor; it was well beaten, and was easily travelled upon. But no where do we discover so clearly, the characteristics of a people, as in the customs and duties of their women. No where do we see the station of the man more plainly than in the bearing of his help-mate. Apply this principle, in the present instance, and the farmer's true position will require no further illustration; for we are told by Sir A. Fitzherbert, that it was "the wife's occupation to winnow all corn, to make malt, to wash and wring, to make hay, to shear corn, and in time of need, to help her husband to fill the muckwain, or dung cart, to drive the plough, to load corn, hay, and such," &c. &c.

Such then was the position which agriculture, after a practice of more than 1600 years, had assumed. From the middle of the 17th to

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the middle of the 18th century, a change began to creep over its spirit, the effects of which are evident in the practice of the present century. And it is now our duty to examine the influences which promoted this change.

Time is the parent of change. As there is a natural tendency in man to increase in knowledge and in strength, up to a certain period, so is there in every art or science, to advance towards, if not to attain perfection. That this spirit should operate upon agricultue, is natural; that, however, it should be so long unmanifested, is a phenomena produced by certain influences; and to the removal of these influences we must ascribe its manifestation at all. Thus, if we saw a youth making no progress in size, from the age of 5 to 15 years, and then beginning to shoot upward, it would be his former stoppage, not his present growth, which would be marvellous. We should ascribe this to the removal of some disordered functions which had obstructed his natural tendency. What then was the disorder which obstructed that progress which agriculture ought to have made, and to the destruction of the influence of which we owe the after progress of the science.

That the frequent changes of proprietorship from the Romans to the Saxons, the Danes, and the Normans, the ravages of war, the iron hand of feudalism and priestly domination over the mind, are amongst these influences, cannot be doubted; and for some centuries we may allow that they would be predominant. When, however, we consider that it was long after these influences were diminished before agriculture began to awake from its lethargy; when we look at the great progress made in every domestic, useful, polished art during the 14th, 15th and 16th centuries, and when we consider that science had fixed upon a footing of security, trade, manufactures and commerce; and that the paths of learning and literature could show the footsteps of such men as Chaucer, Leland, Ascham, Tyndale, Caxton, Spenser, Sydney, Shakspeare, Bacon, Milton, &c. &c., before agriculture had advanced one step towards laying the foundation of future excellence, we must call to our aid some other influence to account for the phenomena. This we shall find in itself. Every age has a marked spirit which stamps with its influence every improvement, and tinges every event. Every science, too, at certain periods, feels a peculiar influence, which turns its energies to the development or non-development of truth. And by the combined operation of one spirit upon agriculture we may explain the lethargic existence of English agriculture.

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It was the oldest science, and consequently was considered to be the best *known* practice; whence, to use language we have before employed,* "it became the youngest in theory; and without principles to regulate its common usage, sanctioned by ancient dogmas, ruled in their stead. Under all circumstances, these remained the same, and of course the practice varied not. The road which custom had marked out was beaten and smooth, and the farmer continued to travel upon it. It was a circle too, and brought him always to the place he started from; and he never lost himself. But in travelling upon one path, and at one pace for a length of time, we both wear out the road and incapacitate ourselves for travelling at any other pace. So, a long course of injudicious management and cropping, not only exhausted the arable land, but, as the fatalism of the Turks has prevented them from marching on with contemporary nations, in the scale of civilization, the practice of a science, the cultivation of which (the same here and every where) required no exertion of mind, deadened the spirit of inquiry in the farmer, and left him an easy uninquiring being, knowing nothing from himself, but governed by an hereditary feeling of obedience to ancient usage."

This, then, was the weight which bound down our agriculture to one long mediocrity. It was considered merely an *imitative* science, instead of an *experimental one*, which, owing to its great variety of operations, and the many different circumstances affecting these operations, it must also be considered, if we would cultivate it with success; for, says Varro, "Nature has given us two ways to agricultural knowledge; imitation and experience. Preceding husbandmen by experiment have established many maxims which their posterity generally imitate, but we *ought not only to imitate others*, but to *make experiments, not dictated by chance, but by reason.*"

But it was not till the middle of the 17th century, that this evil influence began fairly to lose its power. In the Elizabethan age the mind of man appears to have received a general stimulus, the effect of which is sufficiently manifest in the progress of every branch of human knowledge, and agriculture appears soon after to show some marks of general advance.

It was not however till a much later period in the 18th century, when modern science (by pursuing a system of observation and research, in which the mind of the observer and the stores of the science

* Vide.—Quarterly Journal of Ayr, June, 1841. Agricultural Researches, No. 1.

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were improved at the same time,) had, by its achievements, become justified in *acknowledging no perfection* and *knowing no impossibility*, that the principle of imitation entirely lost its influence. Then, when every branch of science had reared itself a structure founded upon the rock of observation, when the eye of the philosopher took a wider range, the hitherto unexplored grounds of agriculture were peered into. *Here* a neglected spring was brought to light—*and there* a "mine of rich discovery." At last the proprietors of these undeveloped resources began to awake; confidence in the hitherto unresisted axioms grew weaker, *imitation* became subordinate to *research*, *observation* and *deduction*, governed upon Cato's principle, "not by chance but by reason." Or the whole case may be thus summarily stated:

It was the practice to take ancient customs as an infallible guide; nothing was then doubted; nothing investigated, and consequently nothing improved. It is now the principle to do nothing without a reason; every thing therefore, is investigated and consequently every thing improved.

The truth of the former position wehave already showed; the results of the other are as clearly developed in the practice of agriculture up to, and at the present time.

To trace the progress of the practice of agriculture since the period when it was beginning to be considered a branch of natural science, and capable of elucidation by the application of the true rules of philosophy, is not our aim. From the first birth of this principle, as we have already shown, it was some time before it became visible upon the practice. Although in the Elizabethan age, the profession became more fashionable, though Fitzherbert, Tusser and Platt, the three first writers on the subject, collected the well tried axioms of the ancients, and urged many practices which had been neglected; their works show us what an educated amateur considered ought to be done rather than what was done, in the 16th century; and it was not until the middle of the 17th, that in the writings of Bligh and Weston we see the actual operation of the spirit of change. By the former, (in 1652,) we have recommended the cultivation of clover. And by the latter (1684) the turnip as the winter fodder, the use of which crops have completely revolutionized the state of agriculture. But it was not till the next century, that they came fairly into use, from which time the present practice may be said to date its existence; nor till some time after this, that the triumph of the modern spirit of improvement became

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fully developed. The bold views of Tull, (1740) gave at once the finish to the new system of cropping (which arose from the growth of clover and turnips,) and a lasting impulse to the principle which had produced the change. In the practical labors of Bakewell, and the Messrs. Culley, and the endeavors of such men as Lord Kames, "to *improve agriculture by subjecting it to the test of rational principles*," we see the continued influence of the new born spirit of progress, and in the present position of English agriculture, the results of that operation. The nature of this position will be seen in its elevated standing and high estimation as a science, which have secured to it within the last 15 years, the labors of such men as Davy, Sinclair, Daubeny, Henslowe, Johnston, Loudon, Lowe, Stephens, Johnson, and Madden, the aid of professors at our universities, and the united effort of more than three hundred societies, established for the purpose of elucidating truth, discerning error, and promulgating the latest improvements in the theory or the practice of agriculture—societies too, patronized by all that have a name or a standing in the country. Thus the Royal Society of England, though but of 3 years standing, possesses not merely the sufferance, or passive patronage of royalty, but the active support of that illustrious individual, who, it is reported, is soon to assume the dignity of King Consort,* and of more than five thousand other members.

Its position as a practice exhibits an equal advance. The first and chief evidence of this, which we shall notice, is seen in the change from the old infield and outfield system, and the alternate crop and fallow, or two crops and a fallow, to the present system of drill husbandry, and the rotation of barley, clover, wheat and fallow upon stiff land; and of barley, clover, wheat and turnips upon light and dry soils. The first advantage arising from this change, on strong land, is the *gain of a crop instead of a fallow*, and as this crop is one of fodder or pasturage, the consequent ability to supply the market with a greater weight of stock; the second is an increase of fertility in the soil from the increased quantity of manure made upon the farm; the third is a better chance of the wheat crop from its natural liking to follow clover; and the fourth an increase of fertility in every crop from the drill system and from the fa-

* This is the report since the Prince of Wales' birth. It is to prevent a confusion of names and the unpleasant circumstance of the son taking precedence of the father. Prince Albert is now a Governor of the Royal Agricultural Society, and has taken into his own hands a farm at Windsor. He was also elected on the 12th of this month, (Dec. 1841,) a member of the Smithfield Club.

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cility with which weeds may be extirpated, half a fallow made, and the soil at the roots of the plant stirred—a practice which theory and experience prove to be highly beneficial to vegetation.

But this is not all; by the introduction of the mangel wurtzel, the carrot, &c. into cultivation, the farmer is at times able to do without a fallow in the rotation. By judicious and effectual drainage, subsoil ploughing, many farmers can grow turnips on this stiff land; and it is yet a *questio vexata* whether or not the fallow may not be entirely dispensed with. This is certain, however, that many of the best practical men of the day think it possible, and many upon a few fields which are thoroughly drained, do dispense with the fallow and produce a fair turnip crop. And I have no doubt but that either this or some other green crop will, in the course of time extend the system, so that the *fallow will become the exception and not the rule*, for the old idea that the land wants rest is quite abandoned.

The effect of the turnip and clover husbandry upon the light and thin soils of England is still more marked. Without fodder, it is an old axiom, that there is no cattle, without cattle no manure, and without manure no corn. The *total* abolition of the fallow, and the substitution of two crops of green food, has, therefore, upon the light lands, produced in a *greater degree* those advantages which we have enumerated as having arisen by a partial adoption of the same system upon the heavy lands of England. Moreover the treading of sheep has a most beneficial effect; so that those soils, which formerly would scarcely return the seed, now produce as fine crops of corn as can be met with in England. The Yorkshire and Lincolnshire wolds are startling evidences of the truth of this; and I can look out at the present moment upon 500 acres of thin limestone soil which 50 years ago paid, and with difficulty, 5 shillings per acre rent, and which now are let at 25 shillings per acre. That the produce has increased in an equal or greater ratio than the rent, is evidenced by the prosperity of the present tenants. I know also a village a few miles from the city of York, the soil on one side of which is strong and deep, and on the other of light texture upon a limestone base. Not many years ago several farms of the heavy land were exchanged for twice the number of acres of the high land, the latter being considered very bad. At the present time, however, this *quondam* bad land, by the turnip and seed management, and the use of bones and rape dust, is considered the crack land of the district, and is letting at £2 and £2 10s. per acre, while the heavy

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soils on the other side of the village are not worth more than 15 shillings per acre, as they are not drained, and cannot be managed upon the improved system.

But there are several other rotations of cropping used in particular localities; but as they, for the most part, depend upon the same principle as the one we have noticed, they are but exceptions to the general rule, and space will not allow us to particularise them.

The next evidence of the improved practice of the present time is seen in the variety of crops. Wheat is no longer a partial crop—one produced in the garden soils of England—but is the farmer's *paying* crop. Countless varieties of seed are to be found adapted to almost every variety of soil and climate. In barley, oats, beans, peas, tares, rye, potatoes, turnips, carrots, parsnips, mangel-wurtsel, hops, line, and the artificial grasses, the same endless varieties are used, each variety being selected for some peculiar quality. In this small township, last year, I counted no less than fifteen varieties of turnips. Six sorts I myself introduced from the splendid stock of Mr. Matson, of Wingham, Kent. None of the sorts had been grown here before, and they have answered so well in what is called a bad year, that I have no doubt but in a year or two they will be extensively used in this part of the country, to the equal benefit of the purchaser and the producer of the seed. Now, in every article of produce the same improvement is yearly progressing, because farmers are no longer averse to *rational experiments*, and not so much prejudiced in favor of old plans. It is, consequently, worth the while of such men as Mr. Matson, Mr. Skirving, (of Liverpool,) *cum multis aliis*, to devote their time, talents and capital, in raising the best and most pure varieties of seed.

In manures we have manifest the results of the same spirit. Along with a greater skill in the economy of the manure heap, an increasing use and saving of the liquid from the cattle yard, and a more judicious application of the various composts which have been employed for ages, we have now in use a variety of hand tillages which are of modern date, at least as far as regards their general use, amongst which we may mention bones, rape dust, nitrate of potash, nitrate of soda, gypsum, urate, common salt, soot, Lance's carbon, Lance's humus, Clarke's dessicated compost, Poittevin's disinfected manure, Alexander's Chinese manure, rags, graves, soap-ashes, &c. &c.

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Of the change in agricultural implements, it is unnecessary to say that it has been wonderful. The transition from the state of things under which the hammer and the axe were the alpha and the omega of the farmer's stock of implements, (when it was a *sine qua non* amongst the ploughman's qualifications to be able to make his own plough,) is evident to all. If, however, we look at the advance in the mechanism of implements within the last few years, and take into account the short time in which the several changes have taken place, we shall at once allow the part to be more astonishing than the whole; that the improvements made in the last dozen years are far more marked than all that were made previously. The fact is that the exhibitions and rewards of our agricultural societies have given an impetus to the spirit of experimental research in the bosom of the mechanic, and the result is an advance in knowledge equal to that made in any other branch of the practice of agriculture, by the adoption and agency of the same spirit. A practical commentary upon these remarks is offered by the fact that one maker (*Ransome, Ipswich,*) exhibited no less than thirty-six varieties of ploughs at the last meeting of the Royal Agricultural Society of England.

In the live stock of the farm the working and the results of the same spirit are apparent. About ten years after Tull launched boldly the barque of theoretical agriculture, and set open forever the door of improvement, Mr. Bakewell commenced those experiments upon breeding, which, as he based them upon rational principles, and upon a deep and observing knowledge of the nature of the animals he wished to improve, were attended with the most decided success. Thus the sheep which he introduced, and the Messrs. Culley carried to perfection, possessed the quality of being fatted at little more than two years old, while the old breed were scarcely ever fit for the shambles till they were twice that age. This advantage was appreciated, for we know that one of his rams was let for the season for 800 guineas, and that the produce of one ewe and one birth (three rams) were let for 1200 guineas. His bulls, too, fetched 100 and 150 guineas each. Since this time, breeding has continued to be a branch of agricultural science by no means attained without time and study and capital. Yet it is still growing more and more popular; and although the gradual diffusion of the sheep and cattle descended from Mr. Bakewell's stock has reduced the prices, a good animal of any pure breed is yet sought after with avidity, and purchased at a sum far above his intrinsic value for any other purpose than breeding. Thus we read that Mr.

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Jonas Webb, of Babraham, Sussex, let a Southdown ram for 100 guineas, to the Duke of Richmond, at his last show; and, (I take the first case which comes to my hand,) Mr. Smith, of Burley, let fifty-one rams at an average of £10 4s. each, and twelve at an average of £18 10s. each. The following statement of the prices fetched by animals of the Short Horn, Hereford, Sussex and Devon breeds, at the latest sales of each sort which we can meet with, will show in what estimation well bred cattle are held. Thus,

SHORT HORNS.

Bulls.

	Guineas.
"Buchan Hero," (prize bull at Berwick) sold to Messrs. Whittaker & Tempest, Yorkshire, for	200
Messrs. Higginson & Wilson's "Sir Thomas Fairfax," for	155
Mr. Jacques' (Richmond, Yorkshire) "Clementi,"	150
Mr. Wilson's (Yorkshire) "Young Sir Watkin,"	100

Cows.

Mr. Jacques' "Mermaid,"	165
do "Golden Drop,"	160
do "Lady Ann,"	135
do "Rachel,"	100
Mr. Higginson's (Yorkshire,) "Amazon,"	135
do do "Alexandrina,"	140
Mr. Wilson's "Brawith Bud,"	160

Calves.

Mr. Jacques' bull calf, "Dulcimer,"	105
do heifer calf, "Hippodamia,"	60
do do "Purity,"	51
Mr. Wilson's do "Snowdrop,"	60
do do "White Rose,"	42

HEREFORDS.

Bulls.

Mr. Price's "Tramp,"	100
do "Trueboy,"	140
do "Washington,"	166
do "Murphy Delany,"	110
do "The Rejected,"	110
do "Victory,"	100

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Cows.

Guineas.

Mr. Price's "Wood Pigeon," 150
do "Ceres," 115
do "Tuberose," 100

Calves.

Mr. Price's 12 bull calves at average price of.....£42 10*s.* each.
do 10 heifer calves do do ..... 27 3*s* 4*d.* do

SUSSEX.

Bulls.

Guineas.

Mr. Putland's old bull, ... 52

Cows.

do one at 60
do do 50

DEVON.

Bulls.

One of Mr. Quartley's (Molland) 18 months, ... 97

Cows.

do do do "Comely," 53

Calves.

One at 21½
do 18½

At Mr. Parkinson's sale last year, (1840) the cow "Adelaide" sold for 220 guineas, and a bull calf, ("Collard,") for 200.

To pigs, if possible, greater attention is paid than to any other animals. The pig is the poor man's stock, and of course is his study, so that a knowledge of his "points" and qualities is more generally diffused than of any other animal. The poor man loves his pig; he looks upon him as his winter food, and it is rare that we find him ignorant of what sort of an animal will turn out well. Rare too, is it, to find the pig badly kept. The "pig first, and family next," is the motto of many. "We had better be pinched in summer than in winter," was the expression of one who practised this principle. Still more rare, therefore, is it to find that the cottager's judgment and care

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re thrown away. The individual I alluded to above, is an instance: This pig, though of the short eared breed, at 12 months old took the first premium, at the Wetherby meeting, as the "best fat pig," and at 15 months, produced 440 lbs. of bacon.

At the last pig sale in this neighborhood, four young sows of the Rev. Mr. Higginson, fetched £75; and three, at 3 months old, sold for £45.

Of the value, however, of our various breeds of swine, the American farmer appears to be aware; hence the large importation of each sort into the new world, and Mr. Allen's tour will not, I presume, diminish the demand.

In breeding and training the horse, the English farmer has attained the highest possible standing. The English race horses and hunters, carriage horses, and cart horses, are the admiration of the whole world. The extent of the stock of English horses may be judged from the fact that one English dealer, (Mr. Elmore,) has engaged to supply the French government with 2500 cavalry horses in *three months:* and the *quality* from the circumstances that though the agreement is now nearly completed, our own stock is so far from being injured, absolutely relieved, (the horses sent, being those hybrids, between the hunter and the chapman, which are the breeders' "weeds;") and that even the horses rejected by the inspecting officer, are readily sold at a much higher price than the government gives. (Vid. Nimrod's Foreign Sporting New-Monthly Mag. No. 250, page 250.)

The pure bred animals of each class are kept at home at superior prices: The race horse varying in price from hundreds to thousands; the hunter from £50 to £200; the carriage horse from £30 to £100, and the cart horse from £5 to £40.

Of the permanent improvement in the soils of England, which have been made within the last century, but light mention can be made here. Amongst the most important of the means used, are draining, subsoil ploughing, irrigation and warping. Draining, irrigation, and even subsoil ploughing were no doubt known in the olden time; their extensive adoption, however, as a means of fertilizing the soil, is a modern improvement. Thus though English farmers have known for ages *how* to convey water from one place to another by a drain, we do not find that it was ever employed to thoroughly alter the constitution and gene-

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ral temperature of a soil. It was not, then, till the general reactions in the spirit of agriculture took place, till Tull, by fanning the spark into a sudden flame, set others to think as well as himself, and till Bakewell had applied the principle to breeding, that it began to be understood fully. The labors of Dr. Anderson and Mr. Elkington, (1761) showed at once that it was an agent which if properly used would be of an immense benefit, and *how it should be used.* Since that time it has assumed the shape of progressive system dependent on scientific principles, and as such has improved in its practical details and in its results.

The advantageous effect of draining upon heavy soils must be just as great as the injurious effect of too much water. What these evil effects are, Professor Johnston in his Lectures at the Durham University, has shewn; and Dr. Madden, in an elaborate paper in the "Quarterly Journal of Agriculture," for this month, (Decr. 1841,) shows most beautifully the mechanical as well as the chemical action by which too much moisture injures the vegetative process. To quote from either of these authorities in this hasty sketch, is not in our power.

The good effects of irrigation and warping; both merely systems of applying weak liquid manure in immense quantities, and of the subsoil plough as an instrument by which the water is permitted to diffuse itself more generally through, and the atmosphere to act upon the tenacious subsoil, so as to make a change as it were in the general character of the component parts of the soil,* may also be philosophically demonstrated. But it is in each case unnecessary. We have the proof positive in millions of acres. Thus the fens of Lincolnshire, Huntingdonshire, and Cambridgeshire, which 50 years ago were stagnant marshes, and are now luxuriant pastures.† Chat Moss (Lancashire,) in 1820, a yawning morass, and now a golden cornfield, studded with *incipient villas,*‡ and the statements of Mr. Denison of Kilnwich Percy, (Transactions of the Yorkshire Agriculture Society,) of the Rev. Mr. Craft, (Journal of the Royal English Agricultural Society, vol. 2, p. 32,) of Sir Jas. Graham, (Journal of the Royal English Agricultural Society, vol. 1, p. 32,) and of the author of British Hus-

* Vid. Evidence of John Smith, Esqr. inventor of the subsoil plough. Also, "statement of T. F. Kennedy, M. P." before committee of the House of Commons, 1837.

† 200,000 acres of the Lincolnshire fens have been reclaimed. In other counties many acres have been similarly reclaimed. 25,000 acres of Deeping fen are drained by two steam engines of 60 and 80 horse power.

‡ Vid. Evidence of M. J. Ellis, before House of Commons, 1837.

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bandry, (vide Pamphlet on land draining, &c.) exhibiting as they do a change from comparative sterility to fertility, from a nominal to a fair rent, are practical evidences of the value of the permanent improvements produced by draining, warping, irrigation, and subsoil ploughing. They are evidences too, which, while they profess to record what the system has done for individuals, are really illustrations of what it is doing for all.

Such, then, is a brief sketch of the advance made in the several departments of English agriculture, up to the present period. Of the whole progress, the one county of Lincoln is a lucid epitome. Divided into three natural portions, the *fens*, the *heaths*, and the *wolds*, the former of which, fifty years ago, was an unprofitable marsh, and the latter barren sheep walks or miserable oatlands; yet now, by the aid of draining, 200,000 acres of the fens are luxuriant pastures, which bear a heavy stock of as fine cattle as can be met with in England; while the *wolds* and the *heaths*, by the adoption of the turnep and clover culture, and the use of bones and rape dust, send to the market countless flocks of sheep, and as fine samples of wheat as can be found any where.

Thus we learn from the evidence of Mr. R. J. Atkinson, Mr. Francis Isles, and Mr. John Houghton, (vide "Compendium of Evidence before Committee of House of Commons, 1837,") that on the whole of the lands *from Lowth to Barton*, where thirty or forty years ago *wheat was scarcely known*, and the land was, generally speaking, *uncultivated*, much improvement has been made, even within ten years; that 28 to 30 bushels of wheat is an average crop; that it is of a fine quality, and can compete in the markets with that grown on strong lands; also, that when clay land has been drained, in some districts, it will bear green crops.

And the general results of the same agency throughout England are, that wheat, instead of being a luxury confined to the rich, is now the staff of the poor man's strength. The quaking morass and the arid moor wave with the golden grain, and the acre which formerly gave back four times the seed, now returns it from eight to ten fold. Instead, too, of winter being a season of starvation to the cattle, when existence was all that could be hoped for, it is now essentially the season for fat and plenty; for if the turnip cultivation has given the grazier the power of increasing the *quantity*, the skill of the breeder has

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equally increased the *quality* of his stock. This will be seen from the estimated weight of cattle and sheep at Smithfield market, at three different periods, hy Davenant, McCulloch, and Youatt.

1810,	Davenant estimates	cattle at	26 st. 6 lbs.	Sheep and lambs,	2 st. each.
1830,	McCulloch	do	do	39 st. 4 lbs.	do 3 st. 8 lbs.
1840,	Youatt	do	do	46 st. 12 lbs.	do 6 st. 6 lbs.

But all these may be summed up in one grand national result, that *while we have waxed in name and in numbers, we have increased still faster in wealth and in the means of life.**

Such, then, is a brief glance at the progress of English agriculture. Trivial as has been the record which we have been able to give of it, sufficient of both cause and effect has been developed, in the history of the past, to make our prophecy for the future a golden one. Such prospects, we are inclined to believe, are not delusive, not merely because it is natural to look through the past to the prospective, and it is natural also for the object to assume a tinge from the medium through which it is viewed, but because it is an axiom that like causes produce like effects; so the means which have done so much for agriculture, being continued in operation, it is fair to presume will yet do more. And that the same agency will continue to operate, we may the more safely judge, because nearer we look to the present, and more we see its effects. Thus we know that since the commencement of the present century, our produce has increased faster than our population. Between 1800 and 1820, this is evident, but it is more so from 1820 to the present time. Thus even Mr. Macculloch says, "The price of wheat in England, at an average of the ten years ending with 1820, was no less than 83*s*. 6*d*. per quarter: its average price has since, as we have just seen, been reduced to 56*s*. 11¾*d*. per quarter; and yet, notwithstanding this tremendous fall, a most extraordinary improvement has taken place in agriculture since 1820, so much so, that *we now provide for an additional population, not only without any increase, but with a very considerable diminution of importation.*"

* In 1387, the manor farm at Hawstead, (Suffolk,) produced on 66 acres only 552 bushels of wheat, or not quite 8½ bushels per acre. The average of England is now 24 bushels per acre. According to the same authority, (Cullum's Hawstead,) 26 acres of barley returned 52 qrs. 2 bushels; 62 acres of oats returned 40 qrs. 4 bushels.

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If we look, however, from 1830 to 1840, we see still more clearly the operation of the spirit of progression; and in the individual and united efforts of the agriculturists, in fostering every germ of improvement, at this present moment, we have a still surer evidence that it is not yet inoperative. If we know, then, that the wheel of improvement has had an *impetus*, and that that impetus has kept increasing up to the present time, may we not conclude that it will not yet stop?

But there is another consideration which induces us to picture bright prospects for agriculture. The progress which has been lately made has not been a progress or extension of the practice merely, but an extension of the knowledge of the science of agriculture; for if we look to the 20 years preceding 1820, we shall find that 1677 enclosure bills were passed, and that 3,068,910 acres of land were brought into cultivation, while in the ten years after 1820 only 186 enclosure bills were passed, and 340,380 acres reclaimed; and yet it is a remarkable fact that the necessaries of life were more plentiful in the latter period than in the former.

The advance, therefore, that has been made is an advance that cannot be forgotten. It is an *achievement of mind over the mysteries of matter;* and now, that the fruit of the conquest is tasted, it will incite to other and more extensive exploits.

But while the past performances and present principles of agriculture entitle us to hold out such prospects, and to anticipate, with a hope amounting to conviction, that they will be gloriously realized, we must not forget that the brightest object has a shadow. So, it is our duty to notice that even now a cloud hangs about the horizon, which, by threatening the glory of the day, throws a partial gloom over the brightness of the morning of these prospects. Thus, with a full knowledge of what has been done, and what may yet be done, if he be permitted to use the same means, the English farmer is, at the present time repressed in his exertions by a fear which is not without some foundation. The immense efforts made by a certain class to deprive him of the protection, on the faith of which he has buried his capital in the improvement of the soil, is this foundation. It is not our object to discuss the merits, or the demerits of the free trade theory; so far, however, as it interferes with the prospects of agriculture, as faithful chroniclers, we must allude to it. And that it should in some degree mar these pros-

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pects is not strange, when it is considered that the declared object of the theory is to reduce the price of the English farmer's products to a level with those of the continent, and the declared effect (vide Lord W. Russell's speech) that 2 or 3 millions of acres of land must go out of cultivation; and according to Lord Spencer, that *even the good land* would go out of corn cultivation, and be converted into pasturage.

Knowing, then, these designs, knowing too, that in his present situation in society, with heavily taxed soils, and with dear labor, he cannot compete with the produce of the untaxed soil and cheap labor of the continent; and that the land upon which he has invested the most capital in improvements or in tillage, must suffer first, because the interest of this capital has to be repaid by the increased crop, and because the management of such soils are the most expensive (as natural deficiencies cannot be supplied artificially without expense.) Knowing, we say, this, is it possible for him, at the present time not to feel misgivings, to hesitate, and often to finally relinquish those improvements which, were he sure of reaping a fair return for his capital, he would undertake?

Whether or not it be proper national policy to experiment with such a great and important interest, and to produce so much certain evil for an uncertain good; whether or not it be justice to unroof one house to repair another; and whether, or not, Mr. Van Buren's opinion, that "*nothing can compensate a nation for a dependence upon others for the bread they eat,*" be a fallacious one, I leave. Thus much, however, we are compelled to say, that the very agitation of the question, and the *possibility* of a measure being passed by the Legislature which would reduce the farmer's produce to a rate lower than he can afford, has a tendency to mar, in some degree, the present prospects of English agriculture, and to check that spirit of improvement that has already secured to England, along with its fast increasing population, a still *faster increasing* production of the necessaries of life; and *this attained*, it is said, that population is the *measure of a nation's prosperity;* without it the *index of its ruin.*

This, then, is the cloud which, by threatening the future condition of agriculture, throws a partial gloom over its present prospects. We say a partial gloom, because we have every assurance that it will

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soon pass away. The reasons adduced at the commencement of this portion of our subject, incline us to believe that bright prospects have yet to be realized; and a knowledge of the position which the friends of agriculture hold in the country, the exertions which they have made to promote its improvement, and their knowledge of its importance as a national interest, convinces us that this cloud will not be permitted to destroy them. Had this "heavy blow and great discouragement" been contemplated before English agriculture had assumed its present standing, as a science, it might, perhaps, have been carried into effect. It never can now. Ignorance and apathy are no longer the characteristics of the guardians of the soil. The lamps of science shed their light over the once dreary waste, and in it the statesman sows the seeds of national independence and prosperity, and the philosopher finds food for the mind; and it will not be made the subject of an experiment. Never will such a great interest be risked for the sake of trying a novel theory.

This then assumed, what a field opens to our view. By developing the same spirit of progress which actuates modern science, agriculture has become identified in principle, and consequently equally identified in progress with it. Moved, then, by the spirit, and directed by the pioneers of science, who can point out an end to its progress, or say, "thus far" to its prospects. Before the philosophic mind, whatever may be its favorite sphere of action, there is ample food. In animal and vegetable physiology, in the formation, classification, constitution, and fertilization of soils, and in the elucidation of, and the supplying the wants of vegetation, much has already been accomplished; but our best guarantee that much *will yet be done* is the fact that much *wants doing*.

For instance, we know the structure and peculiarities of vegetables, the chemical constitution and mechanical process of vegetation; but we are ignorant of the elements of vitality. We know that certain soils are more fertile than others; we can trace the constituent elements of each, and discover external or mechanical causes influencing the fertility, but of the essential principle of nutrition—the *elixir vitæ*—or of the combination best adapted to the wants of the vegetable life, we can scarcely be said to know the least. We may apply this ignorance to a single vegetable, to a single soil, how much, then, has to be accomplished before it be removed in toto.

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We know something of the uses of animal and vegetable manures; but how can we know their proper economy till the mystery of vegetation is more clearly developed, and the constituents and conditions best adapted to special cases ascertained. Much, in fact, has yet to be developed before the essential elements of the soil, the operation of each constituent, the operation of various manures, and the effects, mechanical and chemical produced by certain crops, are clear to us; yet these must be known before agriculture reaches its fair and legitimate standing as a science, and before we can produce the conditions most essential to fertility.

To the practicalist are duties no less urgent. It is for him to banish from his vocabulary the word best; to think nothing good because it is old, and nothing worthless because it is new, but to lend an observing eye to its proof, and to endeavor to promulgate the truths that practical observation or scientific knowledge may have taught him. For much that is known has yet to be applied to practice. Thus geology has given us a key to the formation, nature and properties of soils, and their bases; and affords us, as is evidenced by Sir J. V. Johnson, (Jour. of the R. Agr. Soc. of England, vol. 1, p. 273,) such practical results, as, "1. The knowledge of applying lime; 2. Laying down fields to advantage to grass, and when and how to plant wheat; 3. What trees to plant in each stratum."

Chemical analysis, too, supplies us with the relative proportions of the constituents of the soil, and shows us what element or earth it is deficient in. Geology again teaches us where that element is found; yet how seldom do we find this method of improving the soil resorted to, although Davy long since made known that "the best natural soils are those of which the materials have been derived from different strata, which have been minutely divided by air and water, and are intimately blended together; and in improving soils artificially, the farmer *cannot do better* than imitate the process of nature. The materials necessary for the purpose are seldom far distant; coarse sand is often found immediately on chalk, and beds of sand and gravel are commonly below clay. The labor of improving the texture is repaid by a great permanent advantage; less manure is required, and its fertility insured; and capital laid out in this way secures for ever the productiveness, and consequently the value of the land." (Lecture, p. 204.) Although, too, we are aware, from the writings of agricultural chemists, of the high value of liquid manure—that, in fact, 1 lb. of urine will produce 1 lb.

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of wheat, how seldom do we see it preserved at all. A writer in the Prize Essays of the Highland Agricultural Society of Scotland, (Quarterly Journal of Agr. for this month, Dec. 1841,) calculates that as much is lost as would, if applied, have an effect equal to the whole of the lime, rape dust and bones which are commonly used.

By the amateur agriculturist, and in this class we include statesmen and every one who is a farmer by choice, much is required. By him, an example should be set, in the adoption of all improvements, and the support of the means which are publicly proposed for the encouragement of agriculture, and every facility afforded to the tenant to follow in his wake. Adopting this principle, there is one change in his power to make, which will tend to stimulate the improvement more than any other. This is, a change from the present tenant-at-will system of letting farms, to the short-lease plan, with *a corn rent*, "*depending on the marketable price of the produce.*" The advantages resulting from this would be,

1st. A tenant with capital equal to his farm; for he would never think of taking it, as is often the case now, till he met with a better, and after robbing it, or it robbing him, for a few years, leave it for another to experiment upon; but, as his engagement would be one of some duration, he would consider well before he bargained, and after, he would endeavor to make the best of it.

2d. As the only way to make the best of it would be by good management, he would lay his capital out freely, being sure of his tenure, and consequently of reaping the benefit of his improvements. And this is not the case under the year to year plan. A landlord may be ever so liberal, and the tenant may have great confidence in him; still he is *human and may err*, he is *a man and will die;* then who can speak as to the consequences? The prudent man, therefore, is content to make such reforms in his farm as will be of immediate benefit, and to use his capital in a manner that it is always at his command. This is the general rule—of course there are exceptions.

3d. He would be partially preserved from the pressure of the times, as his rent would settle with the price of the grain.

4th. If from the above security of tenure springs a liberal use of capital, and from the security against bad times a more equable condition to the farmer, the general result must be an equal improvement in the condition of agriculture itself.

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All these heads might be illustrated by many practical cases. The agriculture of Scotland, where the system is largely employed, has made a most wonderful progress in the face of every disadvantage of soil, climate and locality. And we can have no better proof of the value of this system, than that afforded by the evidence of the Scottish farmers, given before a committee of the House of Commons in 1837. From this evidence we are told that the great improvement made in the agriculture of the Lothians, during late years, is owing to the adoption of the system of leasing, upon a rent regulated by the price of corn; that the improvements made by them, *individually*, on their farms, would not have been made, had they not had such leases; that in the low seasons of 1834–35, &c. they were preserved from much injury by the reduction of their rents, which fell *immediately* with the price of corn. The evidence of one of our first agriculturists, Mr. John Ellman, corroborates these facts. And wherever the system has been fairly tried in England, its results are equally favorable to the improvement of the soil.

Several English landlords have already adopted a measure so fraught with benefit to the whole community, and which tends to increase the production, and consequently to decrease the price of food. The Earl of Leicester's estates are already a striking example of such results from such an agency.

These then are a few, out of the many steps which have to be taken in the march of improvement. And though some of them may be encompassed by difficulties, which it appears impossible to overcome; they are, as we have said, so far from being dark spots in the prospects of agriculture, our best guarantee of their being realized. They are, in fact, the golden apples which will tempt the inquiring mind, further and further forward in the race of research; they are incentives to that observation and spirit of investigation to which agriculture owes so much, and they must be useful. Without incentive man is powerless, with it he may perform wonders; but he must do much. For, if the mind once seeks, it must find something; and it may be something of more value than that which was originally sought for. Thus, to the vain search after the philosopher's stone, we owe the discovery of many chemical truths; and, to the equally futile attempts at perpetual motion, we are indebted for much that is ingenious and useful in mechanism.

"An apple's fall, thus led the searching eye,
To the deep mine of rich discovery."

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But there is another inlet, through which I see a prospect of some agricultural knowledge, shining upon England. The Chinese war, will, I hope, open this door. How, will not require much explanation. The present war is not an opium war. As the Hon. John Quincy Adams proves, (in his admirable lecture on that part of the law of nations, which applies to the existing war between Great Britain and China.—(*Boston Notion, Dec. 4th.*) "The cause of the war is the Ko-ton! the arrogant and insupportable pretensions of China, that she will hold commercial intercourse with the rest of mankind, not upon terms of equal reciprocity, but upon the insulting and degrading forms of relation between lord and vassal." England will bear this no longer; the final instructions to the plenipotentiary, demands that future intercourse shall be carried on upon terms of equality, and according to the forms which regulate the commerce of other nations; imposts and restrictions upon certain articles, being, of course, at the option of each party. That England will compel the abandonment of what Mr. Adams, terms "an enormous outrage upon the rights of human nature, and the first principles of the rights of nations," is not a question of ability, (I think;) but of will. And that she has the will, her present preparations show. Moreover, she must now have a trade upon fair terms, or no trade; as she has gone so far that the Chinese, if not forced, will not trade at all. That they will be compelled to bow to the laws of civilized nations, there is no doubt. England will have the credit, and all the world the benefit, of having taught a lesson of humility to, and of having laid the foundation of the future civilization of a people whose vanity and ignorance has hitherto induced them to consider China, the very heart of the universe.

This accomplished, and agriculture must benefit from it; for though they are so exclusive and ignorant, universally speaking, every author allows that their practical agriculture is the most perfect in the world. Let, then, an intercourse upon equal terms, be fairly established with such a people, and there will soon be a barter of knowledge, as well as of goods. By having made every art, an experimental one, a thousand years ago, without the aid of scientific principles, China has made many brilliant discoveries. It is, therefore, fair to presume, that if we carry her principles, she will give us in return, some facts, and amongst the rest, some agricultural ones.

Such, then, is a brief glance at the progress of English agriculture, and at the prospects based upon it. That such a foundation warrants

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such a superstructure, we have already fully shown. And our view of it, depends upon no limited examination or partial deductions. The movement that has been made, has been a movement of mind, and with the principles of philosophy as their lamp, its professors and practicalists have become students in the storehouse of nature. Henceforward, the prospects of agriculture are the prospects of science; and its future progress, will be the progress of universal knowledge?

* * * * * * * *

Although writing *currente calamo*, there is a question which I feel inclined to ask, and answer, before I close this paper. It is, what is the American farmer to learn from a consideration of the progress and prospects of English agriculture?

It was the saying of an ancient author, that there never was a book from which something good, might not be derived; so, in the following manner, this imperfect sketch may not be unuseful. As the history of one man is the prophecy of another, as his life is the record of certain principles of conduct tested by experience, and as that record shows what should be adopted, and what rejected, if we would pursue or not pursue, the path of our predecessor; so a glance at the progress, and prospective condition of English agriculture affords a lesson of instruction to the American agriculturalist. In that sketch, he sees cause and effect developed; if, therefore, there be aught therein, which is desirable, the cultivation of the same means will produce the same result; for science is universal; she regards not the ties of kindred or nationality, nor confines her gifts to the "old" or "new world," provided her demands which are equally universal and unalterable, be satisfied. If, then, the achievements of English agriculture be worth aiming at, the path which has been pursued, is worthy of being pursued again; or, in plainer words, the present improved condition of the science in England, will incite the American farmer to employ the same means to attain the same end; and this is the more likely, because American agriculture has advantages which are peculiar to itself. Thus, in the first place, it is not an old practice, and there is consequently, no fixed spirit of imitation or custom to remove, before advancement can be made.

2d. As this is the case, and as many of her farmers are strangers to the country, and to prevailing customs, they are compelled to make it a practice of observation; to the adoption of which, at an early era, China owes her present agricultural excellence; and to her obedience,

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though late, to the same principle, England, as we have shown, is indebted for "the progress and prospects" of her agriculture.

3d. Having, in many cases, broken from family and fatherland associations, these farmers must possess some energy of mind, a qualification which will, at least, teach them "to know themselves," the first step to knowledge; and induce them to adopt every means of improvement which is in their power.

4th. The American farmer is generally the freeholder or owner of the farm he cultivates. The improvements he makes, are, therefore, his own, without doubt, and his best policy is to increase the value of his property.

That these influences are in operation at the present moment, this volume of "transactions," is sufficient evidence. It is impossible, therefore, that a glance at English experience can be uninteresting or useless.

J. H.

North Deighton, Wetherby, Yorkshire, Dec. 31, 1841.

ON TILLAGE.

By Willis Gaylord, *of Onondaga.*

The term *tillage* is sometimes made to comprehend all the operations of agriculture, from the breaking up of the soil to the gathering of the harvest; but this use of the term is deemed objectionable, and in the following remarks it is proposed to limit it to the preparation of soil that precedes a crop, and which is necessary to successful culture. All soils in a state of nature, that are fit for the purposes of tillage, are usually covered with a vegetation peculiar to themselves, sometimes luxuriant, not unfrequently worthless to man or beast; and which it becomes necessary to displace, before the cultivation of the plants useful to man can be attempted. Of the instances of natural vegetation, or plants useful, previous to culture and tillage, the forests and prairies of our own country may be adduced; of those which are worthless, and must be displaced, the thistle, that, to an immense extent covers the plains of southern America, may be given. A few worthless plants appear to be consequent on tillage, never appearing, or but to a limited extent, on soils in a state of nature; of such, some of the weeds that are too apt to infest cultivated farms, and of which thorough tillage is the most effectual cure, are familiar examples.

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It is well known that a large number of those plants which are most useful and valuable to man, constituting his food, and that of the domesticated animals, are rarely or never found in a state of nature, or in untilled soils, and consequently the tillage or preparation of the soil for such crops, constitutes the great purpose of agriculture. Wheat, rice, corn, the cultivated grasses grown for animals, the roots which form so important a part of the food of man and of beast, and many of the most valuable fruits, are dependent on tillage, or previous preparation of the soil for their perfection, and adaptation as food. The tillage of soils in which plants are grown, may be said, in many instances, to have changed their character and properties from what the were while growing wild, or in a state of nature. Of this, it is only necessary here to adduce the case of the potatoe, which, from a wild, diminutive, poisonous root, has, by cultivation in tilled soils, attained the very highest rank among the plants valued as food by man. The tillage of the soil may then be considered the very basis of all agriculture, as without it few of the grains or grasses can be grown, and none of those on which mankind is most dependent for bread. The necessity, use and importance of a thorough tillage of the soil cannot, therefore, be too much insisted on, or too forcibly impressed on the mind of every farmer.

Soils, such as are fit for, and are usually submitted to the operations of tillage, differ from the ordinary earths which constitute their basis, by containing a portion of decayed animal or vegetable matter, or matter which has once been subjected to the processes of organization. The pure earths, when destitute of such decomposed materials, seem to produce very little effect on plants, so far as positive nutrition is concerned, but in combination with water and such matter they perform most important parts in the processes of vegetation, serving to retain and convey water for the use of plants, giving firmness and stability to their positions while growing, and by uniting chemically with some of the gaseous matters absolutely essential to plants, render them less fugitive and more accessible for the great ends of vegetation. Tillage, or that preparation of the soil that precedes a crop, aids in accomplishing all these purposes; it unites the earths and the organized matters more completely; it gives more friability and permeability to the masses acted upon; it gives a greater freedom and range to the action of the roots, in their search for food, and by the effect of aëration, or exposure to atmospheric action, enables every particle of the soil to receive a part of the benefit derived from such a processs. The change which makes the conversion of the earths into soils, and which is so essen-

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tially aided by tillage, is easily perceived, by the changes in color, texture and qualities, which it undergoes; and on long cultivated lands the line between the scarcely modified earths, and the soils fit for the growing of crops, is usually found but a short distance below the point reached, in the operations of tillage.

One of the great ends to be gained by tillage is the more effectual pulverization of the soil, and the mixing together of its several parts in such a way as to ensure the united action of the whole in the production of the crop. There is, it is true, a point beyond which pulverization cannot go, without injury, as experiments show that the earths or matter made impalpable are unfit for vegetation. Alumina, in its state of clay, approaches the nearest to this state of any of the earths tilled, and every farmer knows that a pure clay is one of the worst soils cultivated. But the point where pulverization is injurious is never even approximated by the ordinary operations of tillage, as the incorporation and mixture of the siliceous, calcareous and organic materials with each other, precludes such a result. The pulverization effected by tillage is so essential to the cultivated plants, that without it they cannot exist in the condition required for the purposes of man. Hales, Tull, Duhamel, and other experimenters on vegetation have found that the multiplication of the fibrous roots is in proportion to the pulverization the soil has received; and since, as the prince of organic chemists, Liebig, has demonstrated, that with each new root the plant obtains a new mouth, it is evident that in this respect alone tillage is indispensable. Tillage of soils, by turning them over, and by the re-admixture of their parts, has a direct tendency to restore the balance of gravity between the earths and the organized matters, which is liable to be lost by the earths, from their greater weight sinking, where the soil is only moved, without its position being reversed. In this case a dense subsoil, called hardpan, is formed, and a spongy light surface, incapable of healthy plants, is the result. Soils made deep and fine by tillage, have a great advantage over those not so pulverized, by leaving their capillary powers of attraction much increased, by which the moisture requisite for plants is more equally distributed. It is not unfrequently the case that on lands untilled, or not properly pulverized, the water is absorbed, or retained so strongly that the roots remain in stagnant water, the air is excluded, and manures produce little or no effect—evils remedied by a tillage deep and thorough enough to open and pulverize the soil.

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The tillage of the soil, or frequently stirring and pulverizing it, is of great use during the growing of all crops, where it is practicable, as it is with corn and roots. In such tillage, all unnecessary disturbance of the roots of the plants must be carefully avoided, but experience shows that the advantages derived by the plants from results of tillage and pulverization will far more than compensate for the few roots which may ordinarily be broken, or mutilated. Perhaps, too, the fact that cutting off the larger running roots of a tree or a plant causes it to multiply its fibrous branches, and of consequence its mouths may, in part, account for the little injury that growing plants receive from such partial disturbances in the process of tillage. During hot and dry seasons the effect of dews on the soil and on plants is very great, and this effect is in proportion to their porousness and fineness. The earth condenses and absorbs dew, as it distributes water, in the same degree as it is comminuted, and the amount of surface exposed to the action of the air. Now, in a cubic foot of earth there is a million of times more surface exposed to atmospheric influence, where it is pulverized, and pervious to air throughout, than there is where the mass is compact, and air consequently excluded. Tillage operates favorably in increasing the temperature of soils so acted upon. Every farmer is aware that soils in a condition to be ploughed, become warmer and sooner fitted for putting in seeds by being ploughed, and having the warm air or spring rains admitted freely, than if left compact, and not so exposed to atmospheric agencies. Grisenthwaite remarks, that "earths are among the worst conductors of heat with which we are acquainted, and consequently it would be a considerable time before the gradually increasing temperature of spring could communicate its genial warmth to the roots of vegetables, if the lower strata or subsoil were not heated by some other means." Turning in the warm surface earth in tillage produces this effect.

The aëration of soils produced by tillage is one of the greatest advantages which the farmer possesses of ameliorating the land tilled, and benefitting the crop cultivated. Sir H. Davy was inclined to deny that the soil was much benefitted or the crops increased by any combinations effected by atmospheric agency, and hence his opposition to summer fallows, except as cleaners of the soil. His admission, however, that the carbon of plants was much of it derived from the atmosphere, and was furnished to the roots of plants in combination with water, would seem to militate strongly against the opinion that atmos-

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pheric agency has no effect in promoting the growth of plants, or that the processes of tillage are of no avail in the amelioration of the soil.

Tull, one of the most respectable names in the history of British agriculture, was accustomed to maintain that by pulverization alone, the result of good tillage, land might be kept in constant fertility, without the aid of any manures whatever. The application of chemistry to agriculture has shown that Tull attributed to a single cause that which rightly belongs to two; and that while tillage is indispensable to the amelioration of a soil, to experience the full benefit it must be combined with manuring. The earths themselves add but very little to the structure or nourishment of plants, but in them the true food of plants is in a great degree stored, and tillage is the key that unlocks these stores to the action of the air, and fits the decayed matter for further use in the great economy of nature. There seems as yet to be some little doubt among organic chemists as to the precise method in which the carbon which constitutes the essential part, or framework of plants, is acquired, some supposing it is mostly derived from the earth and is taken up by the roots, while others contend that it is mostly derived from the air. Is there not reason to believe that carbon is contributed by both these methods? It is conceded by all acquainted in the least degree with the subject, that the carbon of decayed organic matter cannot be taken into plants without being made soluble in water, and this is done by its conversion into carbonic gas. Leibig has shown that every particle of decaying matter exposed to the air is the continued source of carbonic gas; that when in the earth, unless new air finds admittance, carbonic acid ceases to be generated, and hence the advantage and necessity of rendering by tillage the earth so friable that air and water may readily circulate through the mass—the one to form the carbonic acid gas, and the other to absorb it for the use of plants. Admitting that plants receive from the air the carbon which nourishes them, as Leibig and other modern chemists contend, still the necessity of keeping the earth loose by tillage is not obviated, since it is only by a free access of atmospheric air to the decaying vegetable and animal matter in the earth that the indispensable supply of carbonic gas can be maintained. The oxygen and hydrogen required by plants are easily supplied, since in these the two exist in the same proportions as in water; but with the carbon the case is different, and the supply of this can be materially aided by tillage.

The first step in the proper tillage of land is to free it of any superabundant water. Moisture is essential to the growth of plants, but

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water in excess, and particularly stagnant water, such as is usually found in tenacious subsoils, is fatal to most cultivated plants. The first process in tillage, and without which no other one can be successful to its full extent, is, therefore, to free the soil from such excess of moisture, and enable all water that falls upon the means of circulation and escape. All water contains oxygen, which is essential to the formation of carbonic gas, by its action on decaying matter; stagnant water, however, surrounding such matter, or manures, is soon exhausted of this principle, and unless a new supply is furnished either by the circulation of water, or the admission of air, the manure is useless, no carbonic gas is formed, and the advantages that should be derived are wholly lost to the plant. Draining remedies this defect; it prevents the accumulation of water in the earths, and rendering them permeable to atmospheric influences, gives them a new character and new qualities. Every farmer is aware how soon an excess of water in the soil will change the color, and eventually destroy such plants as are sown upon it. The pale, yellow, sickly hue of such vegetation is owing to the want of carbon, and the source from which this should be derived is locked up in the stagnant water beneath. There are but few soils, and these are of the lightest sand, or most porous gravel, that are not benefitted by draining; and it may be laid down as an agricultural axiom, that the first step in successful tillage, is to make it free from all stagnant, surplus water. One of the simplest, cheapest, and at the same time effectual modes of draining, is to dig the drains to the depth of two and a half or three feet, lay a course of stone on each side at the bottom, and cover these with flat ones, to form the water course; throw in a small quantity of straw, pine or hemlock bush, and then fill up with the earth dug from the drain. The frequency of the drains and the size of the water courses must be determined by the quantity of water to be carried off, the tenacity of the soils, &c. To render a system of drainage effectual, much is depending on the skill with which they are laid out, or the certainty with which the causes that produce the surplus water required to be removed are reached.

Within a few years a system introductory to profitable tillage and cultivation has been extensively adopted in some parts of England and Scotland, and in a few instances has been tried in this country, with the most flattering success. Like draining, the object of the process is to draw off the stagnant water so injurious to plants, render the earth loose and accessible to ameliorating agencies, give a new character to the soil, and provide a deeper, and consequently a more

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extensive range for the roots of plants. This process is called subsoil ploughing, and is effected by means of a strong plough, of a peculiar construction, which penetrates and moves the earth to the depth of from twelve to fourteen inches, or even deeper, but which does not bring this subsoil, which when first acted upon is unfit for the purpose of vegetating and nourishing plants, to the surface, as is done by the common plough. By breaking up the tenacious, solid subsoil with this plough, it is found that the water flows off readily, and in a few years the worthless hardpan is converted by the process of aëration, and the addition of decayed vegetable matter, into a soil fertile and capable of being worked by the plough to the depth at first moved. To work the subsoil plough, a strong team is necessary, four, six, and in some cases of very stiff soils, and where an extra depth was desired, eight horses having been used.

But from the earliest history of agriculture to the present day, the implement most to be relied upon in tillage, because of its efficiency, and almost universal application, is the common plough. It is true the ploughs turned out in these days by Wood, Small, and others—ploughs constructed on mathematical principles, and intended to combine excellence of work with ease of draught and perfection of form, differ most essentially from the earliest ploughs used, and which are figured on the coins, sculptures and monuments of Phœnicia, Egypt and Greece. In the rudest of these, a crotched stick, one part of which served for the handle, and the inverted part penetrated the earth, constituted the plough; and the implement used at the present day in some parts of the Ukraine, and in Poland, is not widely different from this. Such a plough was worked by asses, or by a heifer and an ass, or, as in the case recorded by Pliny, by a woman and an ass yoked together. When mechanical skill had so far advanced that a piece of metal, iron or brass, was secured by thongs to the point of this rude plough, it is reasonable to suppose the early agriculturist deemed the point of perfection in the implement had been reached. It is an interesting inquiry to trace the effect which the improvement of the plough has had on tillage, and the result which the extension of tillage has had in reclaiming mankind from their natural nomadic, roving habits, and thus by giving a fixed residence, contributing more than any thing else to the civilization of the world. Men do not labor without the prospect of reward; they will not sow unless there is a probability of their being also permitted to reap; and the very idea of an improved agriculture, based

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on tillage and successive crops, includes, as a necessary result, a permanency of residence and security to property. Agriculture, then, is the pioneer of civilization; and the plough has done more to advance the true happiness and general prosperity of mankind, than all other causes combined.

As an instrument for pulverizing the soil, for deepening it, combining its various parts so as to form a fertile whole, preparing it for aëration, giving it lightness and friability, mixing with it the manures which may be applied, and putting it in that condition most favorable to a healthy, vigorous vegetation, the plough has no equal; and every improvement in it is hailed by every well-informed tiller of the soil, as a decided advance in the great art of culture. On the excellence of this instrument, much of the neatness and success of tillage operations will depend, but with the best ploughs good work will not be made unless they are managed by one practically acquainted with their use. The depth of ploughing, the width of the furrow-slice, the position in which it is to be laid, are all depending on circumstances which should be considered before tillage is commenced. Some crops require much deeper tillage than others; of this kind are carrots and turnips, and taprooted plants generally. The width of the furrow-slice, and its thickness, must be governed by the position in which the turf or slice laid over by the plough is to lie. A furrow slice of which the depth is about two-thirds the width, or ten inches wide by seven deep, will lie at an angle of about 45°, and the edge of one slice overlap or lie on the edge of the one before turned; and this position experience shows to be one of the best for nearly all lands, except such as are very light and porous, which are better when turned over flat. If the plough enters too deep in proportion to the width of the slice, it will not be turned over, but merely set up on one edge, an operation by no means favorable to good tillage. On heavy soils, or such as are apt to be wet on the surface, furrow-slices laid at an angle of 45°, and lapping each other, give some space for the passage of surplus water, and a lightness and capacity for aëration not easily attained in other methods of ploughing. This method, however, will not ensure as speedy a decomposition of a thick strong turf as when laid flat and rolled down; hence many farmers choose the latter mode in preparing their summer fallows; and where soils are light and sandy, they should be turned flat and rolled, to ensure the decomposition of vegetable matter turned under, and give the firmness requisite to cropping. There is a serious

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defect in many ploughs which effectually precludes good tillage. Instead of being constructed so as to have the bottom of the furrow level, and parallel with the surface, one side of the furrow-slice will be much thicker than the other, making the furrow bed notched, and the earth stirred at unequal depths, a condition unfavorable to a good crop. The position of a good plough will be vertical; it will run steady, and require little effort to keep it right; and it should be remembered that an exertion of the force of one pound on the part of the ploughman to keep his implement in a proper position, will frequently cause a continued expenditure of some twenty or thirty by the team, useless to the work if conducted with proper implements, and most injurious to the horses or cattle employed. The experiments made in England under the direction of Mr. Pusey, in Scotland by the Ayrshire Agricultural Society, and at Worcester by the Massachusetts Agricultural Society, have proved that in the same soils some ploughs run with nearly one-half less force exerted by the team than other ploughs, a difference which should arrest the attention and excite inquiry in every farmer who has any regard for the animals he employs in tillage.

There are many other implements of great value in tillage, for stirring, making the soil fine, and freeing it from the grass roots and weeds that too frequently obstruct the growth of the cultivated plant, and lessen the crop. Of these the harrow, cultivator or horse hoe, and roller, may be deemed the most important and useful in the purposes of tillage. In this country, where the Indian corn is so valuable a crop, the cultivator is a most important instrument in its management, keeping the surface clean and loose between the rows, without endangering the roots, as is the case where the common plough is used. The cultivator, too, is used by many farmers in putting in their wheat, in preference to either the plough or the harrow, as it does not cover the seed so deep as the first, or so lightly or defectively as the last.

In the tillage of land, or the preparation of the soil for a crop, there are few things of more consequence than the proper application of the manures, or the animal and vegetable matters which are required to furnish nutriment to the plants. Manures act in two ways; first, mechanically, in keeping soils naturally heavy and tenacious, from becoming too compact; and secondly, in providing positive materials for the construction of the new plant, or in other words, furnishing it food. If considered as a source of food, all that manure can do is to furnish carbonic gas; then it is evident that all manures placed so deep in the

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soil as to lie beyond contact with the air, must be comparatively lost to vegetation while they remain in that condition. Experience shows that the texture of the soil in relation to its earthy constituents, is to be taken into consideration in applying manures. If the soil is very light and porous to a great depth, the soluble and most valuable parts of manures, when applied, sink beyond the reach of plants, and produce little or no effect upon them. Such soils are with propriety denominated *hungry*, and the proper remedy in preparing them for tillage, is to mix such earths (aluminous or marly) as shall give more consistency, and consequently retain water longer. Where this is not done, the manures should be merely covered, and those manures which can be most readily appropriated by the plant, such as compost, bone dust, poudrette, &c. will be found the most effectual. Indeed, it will as a general rule be found that whatever the soil may be, manures will be most effective and beneficial when lightly covered, or only deep enough in the earth to have the covering sufficient to absolve the gases that may escape during the fermentation of the manures. Considerable ammonia, one of the most active agents in promoting vegetation, is always evolved or liberated during the fermentation of manures; and though it may not be eventually lost to plants, yet the farmer who looks to having good crops of his own, will remember that all such gases escaping into the air, are quite as likely to benefit his neighbor as himself. In applying manures to soils, ploughing or harrowing them in, or covering them in any way not too deeply, will prevent this loss.

The application of the general principles of tillage to the cultivation of crops is very simple. If the land is filled with weeds, or plants injurious to profitable cropping, summer fallowing, or crops that require the hoe will be found the best for cleaning them. But either to be successful, must be thorough. Ploughing only once or twice is the best way to propagate, not kill weeds; and hoeing, unless the farmer makes a business of repeating the operation as often as the matters to be eradicated require it, will be labor mostly thrown away. No tillage can produce good crops on land where stagnant water remains near the surface. There must be air, there must be a circulation of water in the soil, and where this is prevented by compactness in the earth, recourse must be had to effectual draining. There are some soils which are excellent for crops, particularly wheat, if the tillage is good, but most unproductive when the tillage is injudicious. Heavy clay loams, or soils that adhere when worked wet, are of this class.

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When soils of this description are ploughed when wet, the surfa c stirred by the implement becomes a kind of mortar to a certain extent, and when dried is so hard and impenetrable that roots cannot penetrate it, and the manures or decomposing vegetable matter in them is locked up as thoroughly as if the mass had been turned to stone or bricks. It requires much labor, in these cases, to undo the mischief a few hours of work injudiciously appropriated occasions; and not unfrequently the pulverizing influence of a winter's frost is necessary to repair the evil.

Tillage enables us to change the character of the soil in relation to moisture, temperature and fertility. By adding animal, vegetable or earthy materials, by freeing it from stagnant water, by moving the earth deeply and breaking up the too retentive subsoil, by permitting aëration and the action of atmospheric causes, it is in the power of the farmer to render his soils what he pleases, to add greatly to the ease of cultivation, and almost immeasurably to their productiveness. The true rule should be, *till a little and till it thoroughly;* and when part of your farm is brought to the desired state, then you are prepared to profitably repeat the operation on another part. Proceed in this way, and eventually tillage will make the whole farm a garden in character of soil and productiveness.

THE FRUIT GARDEN.

By David Thomas, *of Cayuga county.*

In traversing our wide spreading country, the pomologist must observe with regret that so few of the landed proprietors enjoy the luxuries of the Fruit Garden. The stately mansion, the comfortable farm-house, or the neat cottage, may meet his view in every direction; and well cultivated fields, loaded orchards, and abundant harvests, indicate that plenty reigns within; but if he stop and inquire for the finer fruits of the garden, what answer would he get? In nine cases out of ten, perhaps, their names would sound like the words of an unknown tongue; and the lord of the soil know as little about them as he does of the *lotus* of Lybia, or the *mangosteen* of India.

How many of our freeholders have ever tasted an *apricot?* How many of them cultivate the best *cherries?* How many know that delicious *plums*, always fresh from the tree, may be had from early wheat harvest till the ground freezes in autumn? How many eat the finest

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varieties of the *peach?* How many think of having "the circle of *pears?*"

These questions if duly enamined and considered, would show our deficiency—for deficiency, omission, or neglect it must be, not to provide for all the reasonable wants of our families. Now fine fruit in abundance would supply a reasonable want. The relish for it is prevalent throughout every class of our population—from the honored guest who regales on what is set before him, down to the school-boy who stops to plunder by the way.

Hundreds however, may think, or say, "We have no time to attend to such trifling affairs." This plea might be allowed while a man was struggling to save his property from execution, or his land from the foreclosure of a mortgage; but from him who basks in prosperity, it would come with an ill grace. Every day comforts are not *trifles*. Luxuries which delight the palate, and conduce to health, are not *trifles;* yet well ripened fruits belong to this class; and we are satisfied that much suffering, and many a doctor's bill, might be saved by a plentiful supply.

It may be said indeed, that fruit often causes illness. So grain often causes founder; and cold water often causes death; but it is the *excess* that proves baneful or destructive. Half-ripe, crude, unwholesome fruits have no attraction for him that has free access to the Fruit Garden: it is the unfortunate wight for whom nobody has planted or provided, that incidentally suffers.

One hundred trees in most cases, would furnish an ample supply for a family, and may be selected in the following proportions:

15	cherry trees,	at 37½ to	50 cents.
8	apricot do		37½
25	pear do		37½
15	plum do	37½ to	50
20	peach do		25
5	nectarine do		25
8	quince do		25
4	early apple do		25

The common nursery prices are added; and the annual interest on this sum, whether *borrowed*, or *appropriated*, would barely replenish a tobacco box through the year.

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Now a Fruit Garden containing this number of trees, ought to yield a constant supply of *cherries* for two months; of *apricots* for one month; of *pears* for nine months; of *plums* for three months; and of *peaches* for two months.

One hundred trees would do well on *half an acre;* but if we allow a square rod for each tree, the Fruit Garden would only be ten rods square. Now a lot of this size may be conveniently appropriated on every farm; and where is the owner who cannot build forty rods of fence? Let him listen, however; thorny shrubs would afford the best protection—not against quadrupeds, but Plato's "two legged featherless animals;" and the sooner such a hedge is planted the better.

Unfortunately for the moral character of our population, fruit is too generally considered lawful plunder. The culturist is allowed to have a full and exclusive right to his corn and potatoes—it would be infamy to steal them; but no exclusive right to his fruit—if they can get it. Thousands of honorable exceptions to this charge, indeed may be found, but it is not the less true that a great part of our population is tainted, and deserves to be branded with reproach.

The native fruit of a thinly populated country, growing without culture, and free for all—has doubtless had its share in producing this laxity of morals. "I would sooner have a hundred Irishmen around me than one Yankee," was the declaration of a sufferer, whose fruit had been plundered near the line of the Erie canal, when that great work was in progress. But Europeans are generally more exemplary on this point than Americans—shame on us! When Professor Stowe was in Prussia, where the roads are lined with fruit trees by order of the government, he observed a wisp of straw, attached to particular trees, to protect the fruit: a sufficient guard; but he suggested to the coachman that in America, it might only prove an invitation to plunder. "Have you no schools?" was the significant reply.

Yes, we have schools; but how many where the child is taught to respect his neighbor's property? Too often he acquires literature and vice at the same time. The State of New-York is famous for her schools and her prisons: the latter to supply the defects of the former system, which they do however, very imperfectly. Better let the mandate go forth that the *morality of the Bible* shall be *one* of the chief objects of instruction. TEACH HER CHILDREN TO BE HONEST,

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and then with science and literature, a foundation for true greatness and prosperity would be laid.

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One thing is worth bearing in mind by those who purchase fruit trees: the *best kinds* are generally as *hardy as the worst*, and the difference in price fades into nothing when compared with the difference in *quality*. Nobody is satisfied with mean fruit after tasting better.

For a Fruit Garden, a western aspect is generally best, because it is the least subject to sudden transitions of temperature. Severe vernal frosts often prove injurious, or otherwise, according to the weather that follows. If the sky be overcast in the morning, and the air continues cold, little or no damage occurs; but when the sun breaks out warm, the injury is greatest; and the most so, where the trees are most exposed to his rays. For this reason, a hill or a wood on the east side, may prove very beneficial.

A northern aspect would go far towards insuring regular crops of the peach, nectarine, apricot, if protected from the sun and warm winds by a belt of evergreens. On sandy soils especially, the reflected heat is often sufficient in autumn or winter, *to start* the buds; and snow and ice have been successfully* heaped round the trees to prevent this disaster; but a northern aspect would probably render such labor unnecessary.

Dry firm ground should be chosen, preferring a sandy or gravelly loam, though clay will do with good culture. Wet, peaty, or spongy soils are apt to be frosty; for the radiation of heat is much greater than from firmer land.

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Four ORDERS of arranging or planting trees have been employed, which the annexed figures exhibit, all drawn by the same scale; and the distance between the nearest points (or trees) is intended for one rod. One hundred of these are represented in two of the figures; but in the *quincunx*, owing to the vacancies in the sides, only ninety-eight are

* We caused an apple tree to bloom a fortnight later than the rest of the orchard, by piling wood round it.

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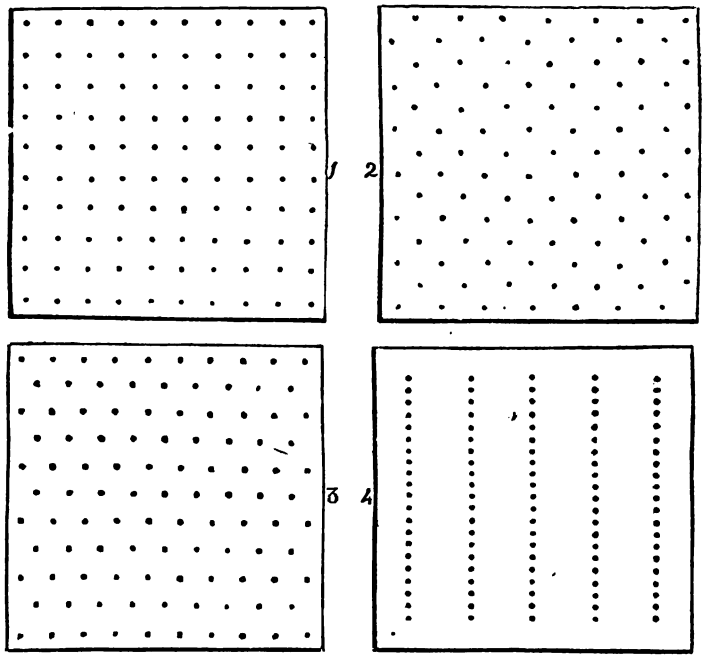
given, while in fig. 3 there is a surplus, although some vacancies also occur at the sides.



The *first* ORDER requires less calculation, and is more generally in use than any other; but in laying out the ground, the boundaries should be first accurately determined; and the lines may then be drawn across it with precision. No less care and attention in this respect however, would be required by the other ORDERS.

The *quincunx* fig. 2, is only a series of squares laid off diagonally; and we cannot perceive any advantage that it has over the common square, though it was formerly much in fashion.*

In the *third* ORDER, each tree (except at the sides) is surrounded by six others, all at equal distances—in other words, it stands in the centre of a *hexagon* made of six equilateral triangles. The trees are thus more equally distributed over the ground than by any other arrange-

* Pope said of Lord Peterborough,

"Even he whose lightnings pierced the Iberian lines,
Now forms my *quincunx*, and now ranks of my vines."

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ment; and if cultivated by the plough, the furrows may be drawn in three different directions.

The *fourth* ORDER, as explained by the figure, may be considered as rather a new proposition; but where a team is to cultivate the garden, the plan has some decided advantages. The spaces between the rows, are wide enough for the deepest ploughing, though it should be more shallow near the trees, and in no case come close enough to touch them. A lighter plough with one horse walking in the last furrow, however, may continue the work, and save much manual labor. And where nutriment is so near, the roots will soon find it.

To lay out the garden according to this plan, draw the line for the fi st row, one rod from the fence; then leave a space two rods wide, and draw another line; and so on till the fifth row be completed, which will be one rod from the fence on the opposite side. This distance will allow room enough to plow between the trees and the fence, and for them not to hang over and tempt prowlers to reach the fruit on tiptoe.

Now 10 rods are 165 feet, and 32 subtracted leave 133 feet, the distance between the first and last trees in the row. For 20 trees, 19 intervening spaces are wanted; and 19 into 133 give seven feet for each space. The trees though crowded *lengthwise*, will find ample room to spread *laterally;* and our experience is decidedly in favor of of this method.

It has been found very useful to keep swine and poultry in the Fruit Garden, on account of their services in destroying insects, and especially the curculio. In many instances no other protection has been necessary; but where the garden is large, the *plum*, *apricot*, and *nectarine* should be planted in the same *quarter*, so that the hogs, if wanted, may be confined amongst them for a time. *Cherries*, and even *peaches*, would also receive benefit from their presence, though these fruits generally suffer less from this insect than the former sorts. Cherry trees however, should stand near together, so that from a central seat, a load of shot may protect them. We do not mean that all birds fond of cherries should be destroyed, but only such as take more than a reasonable share, or that render no services in return.

Many people have a prejudice in favor of birds, that no well balanced mind should entertain. "Denizens of the air," have no more

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right to our property than denizens of the earth. Plunderers on two legs are not more respectable than plunderers on four legs; and cedar birds are entitled to no more regard than rats, unless personal beauty can atone for moral deformity.

Ornithologists often become partial to the subjects of their study, and side with them against the farmer and the gardener—magnifying their services and overlooking their trespasses. The laborer indeed, may drive the geese from his cabbages, throw stones at the crows, and even shoot a hawk—but not the birds that devour his cherries!

An amiable writer, in reference to such visitors, says, "Such has been the security they have felt in our grounds, and so great their increase, that not only *cherries*, *gooseberries*, and *currants*, but *apples*, *pears*, and *plums*, have been ravaged; and it may become a matter for serious consideration whether in continuing our protection, we do not risk the TOTAL LOSS of some of the most desirable appendages to the dessert." Now if called into council, our advice would be prompt and brief: Treat them according to their doings. Make pies of the robins, orioles, and cedar birds—one chicken is worth a dozen of them for business; but save and protect the blue birds, warblers, and sparrows—these are always our friends.

Stunted trees always produce smaller fruit than when the same kind grows on vigorous branches; but the fruit suffers in *flavor* as well as in *size*. The trees should therefore be planted in deep beds of fertile soil. In dry seasons more especially, this provision is of great importance; and young trees treated in this manner are not only more likely to live, but grow much faster, bear much sooner, and bear much better fruit than on sterile land. All our observations go to justify these remarks.

When young trees are taken from the nursery, inquiry is often made how soon they will come into bearing? It is a very proper question, and it would be a proper answer to say: Very much according to the treatment they shall get. When they are set in holes cut out of a sod, just large enough to receive the roots with some crowding, and are then left to take care of themselves, we have no right to expect them to come soon into bearing, nor to bear much when they do. Neither

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half starved cows, nor half starved trees will be found profitable. In the latter case especially, the interest on the purchase money is generally lost for some years, and not unfrequently the purchase too; but we hardly ever lose a tree in good condition, set in mellow ground which is kept mellow.

The holes for the trees should be not less than four feet diameter and fifteen inches deep, but a greater breadth and depth is desirable. Place the soil round the brink of the hole, ready for filling in again; but scatter the harder subsoil back out of the way. The hole should then be filled with the best earth, and rise a few inches above the general surface on account of its settling, first mixing three or four shovelfuls of chip-dirt with the part that is to come in immediate contact with the roots. It helps to keep the ground loose and moist, besides yielding much nutriment to the trees.

The roots of the trees when taken from the nursery should be carefully guarded against *drying* or *freezing*. If such care however, has not been taken, bury the *frozen* roots in the *ground* before they can thaw, and plunge the *dried* roots with several feet of the main stem into *water*, to soak there from 12 to 24 hours, till the moisture is sufficiently restored.

In planting, spread out the roots carefully, and let the best point against the strongest winds. Fine or mellow earth should fill up all the spaces between the roots, so that every fibre shall come in contact with it on every side; and in order to accomplish this intention more perfectly, throw in a pailful of water when the roots are covered, to wash the earth down, and to fill up every interstice.*

Newly planted trees being acted on as levers by the wind, often press the earth round their stems aside, and make an opening down to their roots, which in consequence suffer from both drought and disturbance. To prevent this disaster, it is therefore important that stakes should be provided to support and stiffen them. If driven before the trees are planted, they may be erect; if driven afterwards, they may be slanting; and in both cases, straw bands should be first wrapped once round to prevent the trees from chafing.

* An experienced horticulturist says, "Nine-tenths of the deaths from transplanting arise from the hollows left among the roots of trees by a careless and rapid mode of shovelling the earth in about the roots."

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When trees are set in clay which holds water like a tub, they *soak* and often perish; especially if transplanted in autumn. This evil may be readily prevented however, when the plough can be introduced, by drawing several very deep furrows where the trees are to stand, clearing out the loose earth with the shovel, and then employing chips, brush, potato tops, straw, cornstalks, or old rails, in constructing an under drain. Even if made with these materials, it would last for an age, for when mouldered into earth, the water would soak away along the seam.

Early in summer, after the trees are planted, let the ground be well dug round with the spade, commencing shallow near the trees, but deepening as soon as there is no danger of disturbing the roots. One spading is worth several hoeings, though the broad hoe may be profitably employed once a month after the spade has thoroughly loosened the soil. Trees managed in this way, will grow much faster than if the ground were just scratched over to the depth of an inch or so; and many of ours have grown as luxuriantly through the late excessive drought, as if they were in want of nothing.

The pruning of young trees to prevent their *splitting down*, is a very important operation. Many are greatly injured, and sometimes ruined, for want of this precaution. Where the limbs diverge considerably, nature has provided a kind of net-work of the firmest wood to connect them together; but where two leading branches take nearly the same direction, they soon begin to press against each other; and the bark interposing, the wood is prevented from uniting. The consequence generally is, that when loaded with fruit, they are broken down by the wind. Now it is far better to cut off the limb in time. No material loss is sustained, as all the nutriment flows into the other branches, and increases their vigor.

The advantage of pruning apple trees, is generally known; and unless many of the limbs are cut out, some of the finest varieties become comparatively diminutive and insipid. The same care however, is rarely extended to other fruit trees. When the twigs become stunted and mossy, sometimes they are trimmed by the tempest, or broken down by an untimely fall of snow; and then the benefits of pruning are manifest, even when done in that rough style. It is better however, to depend on art than accident. As a general rule the best flavored fruit of the kind grows on the most vigorous branches well exposed to the sun and air; and with this idea constantly before us, we shall

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hardly do amiss when we apply the axe, the saw, or the chisel; though we may specify that cross branches should be lopped, and thrifty shoots that have room to spread, should be saved.

The tree mosses are parasitic plants, and should be expelled from the Fruit Garden. Lye is often used for this purpose on the apple tree; but we think it is no better than lime whitewash, which purifies the bark, and leaves it in a fine healthy condition. Once a year is quite sufficient.

Under deep snows, or snow drifts that settle round the trees, the *meadow mouse* often gnaws the bark to their great injury or destruction. This animal however always *works under cover;* and therefore the damage may be generally prevented by piling mellow earth round the stems, a foot high, late in autumn. The snow as it falls, is generally swept away from the pile by the wind; and even if the mouse should persist in climbing up on the earth—which we have not known him to do—he would soon come out into the open air, except when the snow was very deep.

Another method which has never failed with us, though requiring attention—is to *tread the snow firmly down round the stems;* and this should be carefully done every time that a deep snow falls, or whenever a drift is forming round the trees. The mouse, as he roots along, always turns away from the hardened snow.

Trees completely *girdled* by the mice however, may be saved by setting grafts *early* in the spring to restore the communication between the two detached portions of the tree—in other words, by grafting them together. Part of a small branch should be *inlaid*, both above and below; and if skilfully done and carefully coated over with grafting mud or wax, it will be very likely to grow, except on the peach or nectarine. We have succeeded in this way on a pear tree; but three or four should be set round the tree.

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Cultivated CHERRIES belong to several species, which have spread into many varieties, and probably *hybrids*. The caterpillar sometimes feeds on the leaves; and the curculio punctures some of the fruit which in consequence becomes *wormy;* but no fruit tree yields a more certain crop, bearing every year without intermission unless the blossoms or young fruit be damaged by frost. Some kinds however, as the *morello*, have been nearly destroyed in some parts of the coun-

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try by the "BLACK GUM." This excresence is caused by an insect which should be carefully sought for, late in the spring or early in the summer; and as soon as the bunches appear, the limb should be cut off and burnt.

The SLUG, another insect, feeds on the pulpy part of the leaf, despoiling its verdure and wasting the vigor of the tree. It might almost be mistaken for the filth of some little bird. It soon renders itself conspicuous however, by its works; and though it sometimes attacks the foliage of other trees, the cherry leaf appears to be its favorite food. It may be destroyed by throwing fresh ashes among the branches by means of a shingle—every worm that is covered, perishes. It has been done when the dew was on the leaves; but if the slug is moist enough of itself to catch the ashes, it would be better to apply them when the leaves are dry, because the latter would neither be injured by the potash, nor defiled by the dust.

The cherry tree is more impatient of *nuisances* than most other kinds. Some have been destroyed by ashes thrown round the stem. Under two trees, the pigs were fed with corn, and the cobs scattered over the ground: both perished. In a slight depression near another, the water collected in rainy weather, and the geese dabbled in it: the tree died the same summer. Lime whitewash has also been charged with injuring the cherry tree; and if it be used at all, the experiment should be cautiously conducted.

The *morello* and *Kentish* appear to be adapted to a greater variety soils than the *heart* cherry trees; and may be employed as stocks for the latter in unfavorable situations. The outgrowing of the stock by the graft, constitutes no valid objection. We have never seen a tree endangered by such overgrowth, while the obstruction to the descent of the juices, favors the enlargement of the fruit.

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The APRICOT was formerly ranked with the plum, but it differs enough to stand separate. Like the plum however, it has a smooth stone, and turns sour with heat; though in flavor it resembles the peach more than any of our fruits. It resembles it also in the excitability of the fruit buds in winter. Its earlier bloom exposes it rather more to severe weather in the spring, but generally it succeeds wherever the peach can be successfully cultivated. In this climate, the tree is perfectly hardy.

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There are two species of the Apricot: the black, and the common sort, which has spread into many varieties. Ripening earlier than the peach, their presence in the Fruit Garden is very desirable.

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Neither the borer nor the caterpillar attack the PEAR tree; but sometimes flies, wasps, and hornets are busy among the leaves, showing that all is not right, and that honey dew emitted by plant lice, attracts them. But this tree is subject to a more serious injury, to wit: the FIRE BLIGHT, which occurs early in summer, the leaves from the extremity of the branches for two or more feet, appearing as if they were *scorched*. We think however, that two distinct causes occasionally operate to produce similar effects, namely: insects, and a starting of the bark in winter.

The late Professor Peck on examining the branch of a pear tree which had died with fire blight, said the damage was caused by an insect (*Scolytus pyri*,) and that to cut off the limbs a foot or more below the dead part, and IMMEDIATELY BURN THEM, would be the proper remedy. We have faithfully followed this advice; and though the fire blight has been several times in the Fruit Garden, its ravages have always been arrested at once, so that we have not lost a tree from this cause in twenty years. We have believed that the new colonies went with us when we carried off and destroyed the branches.

The starting of the bark in winter, appears to be caused by an untimely flowing of the sap, followed by intense cold, which expands it into ice, and separates the bark from the wood. We have observed such effects once or twice, succeeded on some of the smaller branches, by a blighting of the leaves, but we believe it seldom occurs in this district.

The PLUM tree is sometimes, though rarely, attacked by the *peach worm* in Western New-York. Its most formidable enemy however, is the insect that causes the "BLACK GUM," similar in its effects to the insect that destroys the morello, if they are not identical. Be this as it may, it is rapidly increasing; and unless our farmers shall turn over a new leaf, the plum will soon become very rare amongst us. In every direction that we travel, branches are loaded with these excrescences; and if there is one man within fifty miles of us who has done his duty, we should be pleased to hear it.

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To guard against this insect, the trees should be well pruned, though not enough to check their vigor, so that the *bunches* may be readily discovered. Unless this precaution be taken, it would be very difficult to find all of them, without spending more time than people in general have to spare. Let there be no delay in cutting off and burning them when they are found.

It appears that the eggs of this insect are deposited in a slit of the bark some time during the summer, and where they generally pass the winter without hatching. Soon after vegetation commences in the spring, a kind of fungous wood is formed, swelling out on one side of the branch, and amongst this the young progeny finds nourishment and shelter. This fungous wood however, appears not to be occasioned by the worm, for it often occurs where there are none, but by some irritating secretion from the parent.

After the late severe drought, when the trees took a second growth, we found several *new* excrescences so late in the season that probably the worms would have perished with cold if we had not arrested their career. Does the starting of the fungous wood cause the eggs to hatch?

We have spoken of insects that depredate on the *tree:* we now turn to such as injure the *fruit* by puncturing and then depositing a nit, so that it becomes *wormy*, and drops prematurely from the tree.

Every person that cultivates the plum, apricot, or nectarine, ought to be acquainted with the CURCULIO, both by sight and by character. There ought to be a good drawing of this insect, but we have seen none; and at this season of the year, we cannot have one prepared. It is however, a dark brown bug, about a quarter of an inch long, and of singular form, having a slender neck and head. When it drops from the tree, it lies still, pretending to be dead; or if a dried blossom or leaf be near, where it can hide, it moves cautiously under, fearing to be seen in motion. When crushed between the thumb and finger, it feels like Indian meal, and like no other insect that we have examined.

It is timid; and when hogs, sheep, or cattle pass frequently under the trees, it is scarcer than in more retired places. Trees that stand near a door where there is much passing, are often entirely exempt from its visits; and the same result occurs where they stand in a lane

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or barn-yard. The late Thomas Forrest of Germantown near Philadelphia, tied one end of a cord to a plum tree, and the other end to his pump handle, so that it shook the tree whenever they drew water. It saved the fruit.

This insect on one point is very sagacious. It is unwilling to have its progeny drop on a pavement, or into water. The same shrewd horticulturist set his nectarine trees leaning over the fish pond, and not a curculio disturbed them. In regard to pavements, we have had several accounts of their efficacy. A friend of ours had his plums to ripen perfectly over a pavement, while others, without this protection, though otherwise favorably situated, were entirely destroyed.

Only a few trees however, can be guarded in this way. For the Fruit Garden, we want something more comprehensive, and have already referred to the services of swine and poultry. They devour much of the *wormy* fruit, and the young curculios along with it; but some of these insects probably escape, besides all such as leave the fruit before it falls.* How long they live, is not known; but if we may judge from their difference in size, it may be many years; and to this company, the new brood is annually added. Unless the swine and poultry therefore, can induce them to migrate, the fruit must suffer greatly from their ravages, and such has been our experience.

Finding many of our trees nearly unproductive, we determined in the early part of last summer to call these depredators to account. Accordingly we followed the same plan that we recommended some years ago in the New-York Farmer:—spread sheets under the trees, and jarred the branches violently. The little marauders taken by surprise, fell down by dozens; and the contrast of colors, enabled us to detect them at a glance. We chose the cool of the morning for this purpose, when they were slightly benumbed; and persevered till we had destroyed nearly 1700. In consequence all the trees that we visited, bore fuit in abundance; and to prove that our labor was rewarded, a tree that was overlooked bore three apricots, while another of less size bore a half a bushel.

During its migrations, the curculio doubtless uses its wings; and near its native spot it may occasionally fly into the tree; but from several

* Last summer, we observed several cases of this kind where the larvæ had escaped through small holes in the sides of plums and apricots.

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circumstances, we conclude that it generally ascends by crawling. With this belief, circular tin troughs have been fastened round the trees; and being filled, and kept filled with water, have been found useful—for this insect is no navigator. These appendages however, should be applied very early in the spring, before it gets up the trees. Afterwards they are not likely to be of any benefit whatever.

When the earlier accounts of the curculio were published, it was believed to be identical with the worms that infest the apple, pear, and quince; but Noyes Darling of New Haven, more than ten years ago, discovered that they were very distinct; and we repeated his experiment with the same result. It is a dark gray miller that attacks the apple and the pear, and probably the quince. It was also thought that the curculio continued its ravages until autumn; but the same sagacious horticulturist found that its work was finished before midsummer.

The mark which it leaves on the fruit that it punctures, is in form of a crescent; and we have never seen that mark except on stone fruit.

The *down* of the PEACH generally protects it against the curculio; but the NECTARINE, which is only a smooth skin variety of peculiar flavor, often suffers even more than the plum or the apricot.

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The PEACH WORM (*Ægeria exitiosa*) attacks the tree at the root, where the bark is soft from the moisture of the ground, or the shading of grass; but it avoids the hard scaly part, so that old trees are often undisturbed for years. On the reverse, young trees are much injured by it, and sometimes destroyed, especially where two or more are at work at the same time. If they encircle the tree, there is no hope of its recovery, but this is rarely accomplished by one worm.

Though it feeds on the pulpy part of the bark, it seems careful not to disturb the cuticle, so that were it not for the gum and filth mixed together on the outside, it would be diffiicult to find the depredator. The fresh filth however, sufficiently indicates its presence. By entering a knife at that point, and slitting the cuticle longitudinally, the establishment is soon broken up, for it is seldom four inches in length; and then we discover a white grub three quarters of an inch long, which is readily extracted. When it is removed, the tree speedily recovers.

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Some persons remove the soil to the depth of two or three inches, and apply hot water, hot soap suds, or warm brine, at any time in autumn or spring when the ground is unfrozen; and if the gum be also removed, so that the fluid can enter the hole, the worm is sure to perish.

Various methods have been employed to *prevent* the attacks of this insect. In the spring, earth has been piled round the tree a foot high, covering up all the bark that was tender. With the same object in view, canvass or ropes made of hay or straw, have been wound about the stem, and then coated with white wash. Straw in an upright position has also been applied. Tan in small boxes has answered the same purpose; and its properties are also repulsive. Lime and ashes have the same effect. Common salt, either alone or mixed with nitre, has been found efficacious, besides promoting the growth and productiveness of the tree. Half a pound has been scattered round it at a time. Soot employed in the same way, is highly recommended. A small red cedar, planted in the same hole with a peach tree has protected it by its offensive odor. Charcoal in small pieces, heaped up, is supposed to smother the worm by choke damp, and sulphur to poison it with its fumes. Doubtless all are useful, but the appendages should be removed when the warm season is over.

Sometimes a worse evil than the worm, however, overtakes the peach tree. This malady was named by the late Judge Peters of Pa. "THE YELLOWS;" but the leaves are not always yellow, as the name would imply. A more certain indication is the premature ripening of the fruit, with purple discolorations of the pulp, and deficient flavor. As the disease advances bundles of slender twigs protrude from the larger branches, and increase till the vital energy is exhausted.

This case is perhaps the only instance of a contagious disease among vegetables, communicated by contact of the roots, or the application of pollen. That such are the facts, indeed, has not been directly proved, but the circumstantial evidence is strong and pointed. Young, healthy trees, speedily decline when planted among diseased roots. Frequently, the first appearance of the premature ripening is confined to a solitary branch, when no trace of the disease can be found in any other part of the tree. When this happens, it is prudent to amputate immediately, although it is doubtful if the tree itself can be safe-

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ly left to stand till it blooms again. In particular cases we have pruned closely, destroying the blossom buds, and giving it a chance for recovery, without endangering other trees; but we would not recommend it as a general rule, but extirpate the tree in due time.

It is certainly known, however, that the disease can be communicated like the smallpox. We have set buds from sickly trees into healthy stocks, and all have perished in the course of the year. Yet different degrees of virulence, perhaps depending on the stage of the disease, are observable.

There can be no doubt that on a sickly tree, the pit or kernel is as much affected as the pulp that surrounds it; and therefore such stones ought never to be planted in a nursery. A peach tree not attacked by worms, and free from this malady, ought to live at least 50 or 100 years; and we believe no reason whatever, except the two just mentioned, can be assigned for their early decay. If the worm is not at the root therefore, when the tree is sickly, we may conclude it has the yellows; and that this disease, if the pit was tainted, has

"Grown with its growth, and strengthened with its strength."

Some varieties of the peach and nectarine, are subject to a WHITE MILDEW, which appears on the new shoots about midsummer, checking their growth, but not attended with any other ill effects. It seems analogous to the mildew on the grape and gooseberry; and may be cured (it is said) by the application of sulphur water. A better course, however, for culturists in general, would be to stimulate the tree to make a handsome growth in the early part of the season, and to take no further care.

This disease appears to be exclusively confined to Lindley's FIRST CLASS of peaches and nectarines, "whose leaves are deeply and doubly serrated, having no glands." Some varieties of this class, however, suffer very little; while others, such as the Early Anne, are much impeded in their growth.

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The peach is justly considered the most delicious fruit of the temperate zone; and yet it is scarcely known in a large portion of the State of New-York, which we have much reason to believe would ad-

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mit of its successful culture. Not only in the high lands between the Cayuga lake and the Susquehanna, but also in the elevated region between the Great Bend and the Blue Mountain in Pa. this tree has been found healthy and fruitful. We saw several in fine order, the very next season after some had perished with the cold in the low and beautiful valley of Stroudsburgh.

To some persons this statement may appear like a paradox. But what are the other facts in this case? Warmth in winter is pernicious. It starts the sap, swells the bud, and the intense cold that follows destroys bud and branch. On the contrary, the steady cold of the hills, is conservative. The bud is so exquisitely folded and prepared for a severe season, that unless it is disturbed by the sap, it is safe from the greatest cold of our latitude. Like the seeds of the melon, or a grain of corn, it appears to be too dry to freeze.

In the middle districts of our State, let horticulturists therefore remember that the hills are more favorable to the peach than the valleys; and if their labors are unrewarded in the low precincts of their villages, let them occupy the neighboring heights, and lay out fruit gardens there. Let them also remember that many trees and shrubs which are hardy in a dry rocky soil, perish with the cold in a rich border. In the latter case, the wood is not sufficiently matured, and the frost strikes it when it is full of sap, like a weed. To crop the ends of the peach shoots, when they grow too late, has been useful—not so soon in the season as to start the buds, but as soon as that danger is over. We have alluded to the loss of the fruit buds in winter, and the early bloom of this tree. These two causes render the peach a more uncertain crop than the plum or the cherry; but particular circumstances, perhaps not well understood, have had an influence on its productiveness. Where trees stand in the same immediate neighborhood, some are barren while others bear; and a belief is becoming prevalent that grassy ground is most favorable. Though we are not entirely prepared to decide on this point, yet most of our observations lean in that direction; and if it be proved, an exception to our plan of managing the Fruit Garden, ought to be made on behalf of the peach, nectarine and apricot, as soon as those trees are of full bearing size.

Some years ago, we drained a shallow swamp; and though the situation is high and airy, peach trees of the *best bearing kinds* planted there, have always been unproductive. Now the annual cultivation of

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the soil, doubtless rendered it *more spongy*,* and consequently *more frosty*, because it radiated more heat than the paler and firmer ground. But was this the *only* cause? and if so, did it cause the destruction of the buds in winter, or in the spring?

One fact, however, should not be forgotten: To accelerate the growth of the peach tree when bearing, by either culture or pruning, endangers the fruit. In summer, therefore, the soil should not be disturbed.

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The QUINCE tree as well as the apple tree is subject to the attacks of the BORER. The larva of this insect, resembles the peach worm; but it cuts through the solid wood, and therefore is much more difficult to extract. With a barbed wire, we have often succeeded, and sometimes failed. In a young tree that had been neglected, we found them so deeply entrenched, and their holes so winding, that they kept possession. We then made a small auger hole through the heart of the tree, and filled it with sulphur. A few days after we found one of them in a dying state, and no more filth was ejected. Quince trees should be examined on this account, at least once a year.

As the pear tree is not infested by the borer, it has been employed as a stock for the quince tree, and if budded or grafted a foot or more from the ground, it must generally be safe from such attacks.

The quince tree like the pear tree, however, is subject to *fire blight*; but only a few inches of the ends of the branches, suffer. Whether this appearance is owing to the more stunted nature of the tree, or to a different insect, is not positively known; but as it is probably caused by an insect, it would be prudent to cut off the dying tops, and burn them.

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Though WINTER PEARS have something like a determinate time for ripening, or becoming soft, yet this period may be accelerated or retarded, by increasing or diminishing the temperature of the place

* Would the increased radiation from this cause, be counteracted by spreading straw, chaff, or shavings under the trees?

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where they are kept. Our experiments on this point within the last year, have been very conclusive. Pears of a sort that had continued hard until spring in a cool cellar, have ripened towards the close of autumn, in a warm room; and by placing them in different temperatures, the season for each particular kind, may be greatly extended.

When WINTER FRUIT is buried in the ground for long keeping, it should be placed in a box, or on a bed of straw, and be well covered with the same, so as not to come in contact with the damp earth which causes it to swell, crack, and lose its flavor; and to prevent it from becoming musty, it should be kept in an out house, till the ground begins to freeze. We have never known fruit to be damaged, that was treated in this manner, and then timely removed in the spring.

Greatfield, 12 mo. 17, 1841.

INCREASE AND PROSPECTS OF THE SILK CULTURE IN THE UNITED STATES.

By Gideon B. Smith, of Baltimore, Md.

It need scarcely be observed that whatever may be said on a subject so indefinite in its scope and character as that indicated by the above caption, must be equally indefinite, based somewhat upon conjecture, and constructed as it were of collected opinions and rumors. The increase of the culture of silk in the United States, it may be affirmed, has been very great during the last fifteen years; but no one can say that it has increased from one given amount to another, with any authority. We may say safely, that from one hundred to five hundred pounds of raw silk was made in the United States annually prior to 1826; and that during the year 1841, from ten to twenty thousand pounds were made. It is believed that the maximum quantities were actually made, but we have no statistical documents to prove the correctness of the estimates. The only record pretending to any authority whatever, is the United States census, and that is known to be entirely deficient. The actual product of many individuals has been known to have exceeded the census returns of the counties in which they lived. We therefore have no other data than that above indicated. The writer of this article enjoys an extensive correspondence with gentlemen engaged in this interest in all parts of the Union, and from that source he derives his conclusions.

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Previous to the year 1826, the culture of silk was mostly confined to a small portion of Connecticut, where it was attended to as a branch of domestic economy, and generally by the females of farmers' families; some families making two or three, others five or six, and some very few, ten or fifteen pounds of raw silk, which was made into sewings, mits, &c., and disposed of to neighboring store-keepers. About that time, (1824 to 1826,) the culture of silk became the subject of considerable public attention. Congress ordered the preparation of a manual of the art of raising silk, and the subject was agitated to a limited extent in the newspapers, which caused numerous small experiment to be instituted in various sections of the Union. Thousands, even hundreds of thousands of people then saw the silk worm for the first time. An old lady, a Mrs. Norris, in 1825, had a small number of worms on exhibition in the city of Baltimore, to which numeruus individuals, ladies and gentlemen, were admitted for a small fee at the door. Many of the visiters purchased a pair of worms to carry home with them. The writer of the present article was a purchaser of a pair, the first he had seen, which he reared, obtained their cocoons, and about 500 eggs from them. These were hatched the next year, and their progeny constituted an immense stock which he distributed to all parts of the Union for many years afterwards. But still there was very little silk made except in Connecticut, where the business continued with little variation from the previous quantity of product. From that time till the introduction of the invaluable morus multicaulis, the silk culture practically made little headway; theoretically it was to be heard of every where. The introduction of the morus multicalis established a new era in the business. This tree was first made known to the country in the spring of 1830. Its dissemination at first was very slow. Half a dozen small trees were sent to New-England, and small parcels to several other portions of the Union in 1831. Its great facility of propagation caused a very rapid multiplication in various sections of the Union, till in the summer of 1837, the great "multicaulis speculation" commenced. During that and the two following years preparation was made for the culture of silk in almost every neighborhood of the Union, where there were trees, and there were few places where there were none. Whether all these preparations were ever intended for the bona fide culture of silk, or were in fact generally, though not universally, intended as decoys for catching purchasers of trees, is not the purpose of this paper to discuss; that question forms a necessary part of the history of that most stupendous speculation, the materials for which await some

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other occasion for public inspection. Certain it is, however, that if all the silk had been made that was promised during that time, we should have exported, instead of importing, some fifty millions of dollars worth. Either from want of means to go on with, or from a knowledge of the fact that they could not make $5,000 or $10,000 a year from the investment of as many shillings, as soon as the demand for trees ceased, we heard no more of the raising of silk from most of those who had before been talking so much about it. Large and expensive cocooneries had been erected, had made a show of raising worms during the speculation, but were abandoned as soon as the "bubble burst," and but few of those who had before made such loud and patriotic harangues in favor of the silk business could then be induced to say a word about it. The consequence was that the public, identifying the multicaulis speculation with the legitimate silk business, considered the latter itself an exploded delusion. This depressed the spirits of the true friends of the silk culture, and for a short time came near annihilating the business. But they persevered, and entered upon the crops of 1840 with more energy than could have been expected under the circumstances. As if doomed to disappointment, however, the great and disastrous failures by the death of worms, that will be long remembered, took place in all sections of the Union. The causes that led to those disasters were mysterious, and though many conjectured them, and some correctly, so that they might be avoided another year, yet great numbers of even those true friends of the cause that had escaped the dispiriting effects of the multicaulis mania, became heart-sick and abandoned their favorite cause. Many went so far as to dig up and even burn their trees. Notwithstanding all this, in the year 1841 there were enough of true patriots left to give the business another trial, and they did try again, and with effect. The result was, that during that year there was at least ten thousand pounds of raw silk made in the United States, and I think I might safely say double the quantity. This has all or mostly been converted into merchantable goods, in the form of sewings, vesings, ribbons, galloons, &c. and no small proportion of fine dress silks. At the establishment of Miss Gertrude Rapp, at Economy, Pa. about 350 pounds of reeled silk were made during the year 1841, all which has been or will be manufactured at the same establishment into all the varieties of silk goods usually imported. It is not intended to be inferred that there was *no* silk made in 1839 and 1840. There was a considerable quantity; but the product of both those years bore no comparison with that of 1841. Neither must it be inferred that no failures

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occurred in 1841. There were a large number of failures either partial or total, and some operators have relinquished all idea of any further efforts. But the instances of failures were not so numerous as those of success, and it is believed their causes are generally known and may be avoided as we become more experienced in the art. The failures were mainly confined to the Atlantic region of the Union, embracing the southern and middle States, particularly the tide water district, and principally the eastern and portions of the western shores of Maryland, eastern and southern Virginia, and the lower portions of the other southern States.

The increase of the silk culture has been more conspicuous in the western States, and western portions of the middle States, than in the eastern or southern States. In Eastern Tennessee, Kentucky, and Ohio, Western Virginia, Pennsylvania, New-York, and Michigan, the business has been introduced effectually, and it is believed permanently. In each of those sections of country silk, has been made during the year 1841 in sufficient quantity to enable the producers to judge of the profit to be expected from it, and in each case that has come to the knowledge of the writer, it has proved satisfactory. The best proof of this position will be found in the fact, that each of these producers is preparing for still larger operations next year.

The prospects of the silk culture in the United States are most flattering. Whatever the incredulous may say or think to the contrary, silk will soon become a staple of our country, second only to cotton. This I am entirely satisfied of, and I will proceed to give my reasons for the opinion.

1st. The climate and soil of the whole Union are precisely adapted to the production of silk; on this point there can no longer remain a doubt, if any ever existed in any intelligent mind.

2d. The enterprize, industry, and ingenuity of our people render them more than able to compete with those employed in the same business in any other country, on the score of the value of labor. If a European operator work for 20 cents a day, our laborer that receives seventy-five cents, or one dollar, with the aid of his soil and climate, ingenuity and industry, will make himself the more profitable hand. If European labor is nominally cheaper, ours is intrinsically more profitable.

3d. The mulberry tree produces more foliage on our poor soils, and grows more rapidly, than in any part of Europe. It is a singu-

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lar fact, attested to by the many hundreds of thousands of trees imported from France and Italy in 1838 and 1839, that two and three year old trees grown there were not equal in size, nor in the production of foliage, to the average of those of one year of American growth. This fact gives us an important advantage over any other country.

4th. We have an advantage in commencing the culture of silk, that no other nation ever had or probably ever can have. The great multicaulis speculation, caused the trees to be distributed in profuse abundance over the whole face of the country. They were carried to every county, and planted in every township, where most of them remain, awaiting appropriation to their legitimate use. Whatever evil that speculation may have caused to individuals, and to the legitimate silk business, there can be no question that it has done great good in this respect. It is true, that it cast an immense amount of money "upon the waters;" but, that it will return after many days, many fold, there can be no doubt. It not only disseminated the multicaulis, but all the other varieties of this invaluable tree. It not only distributed the mulberry far and wide over our extended country, but it also carried with it, a knowledge more or less practical of the silk business, to an extent which no other event could have accomplished.

5th. Our very necessities will compel us to make silk. During the last 20 years, our imports have exceeded our exports $247,000,000. This is just about the amount of our indebtedness as a people; and, strange to say, it is also just about the amount of the importation of silk during the same period. It may, therefore, be said, that the people of the United States have run in debt for every particle of silk they have used for the last twenty years! Now this state of things cannot continue. We must import less or export more. We cannot export more, unless we produce some new article, and there is no one article not now produced to any extent, that will bear increased production, but silk. We shall, therefore, make silk from necessity, both for home consumption and for export.

6th. The interests of a people will persuade, if they do not force conviction. When a farmer's family shall be convinced that they can make $20 or $100 without materially adding to their expenses or labors, they will be sure to do it. And this is the case with raising silk in a domestic way. Numerous families have produced from five to twenty bushels of cocoons, reeled them, and worked up the product in sewings, or other forms for wearing or knitting, without any considera-

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ble addition to the family expenses. The domestic culture of silk will, therefore, rapidly extend, until the accumulation from these small sources shall swell to an immense magnitude.

As a regular and systematic business, the prospects of the silk culture are also most flattering. Extensive preparations are being made in different sections of the Union, for entering largely into hebusiness the ensuing season. This is particularly the case in Western New-York, Western Pennsylvania, some portions of Michigan, Indiana, Illinois, Kentucky, Ohio, and Eastern Tennessee. In Connecticut, Massachusetts and Vermont, the people are awake to the business, and are promising pleasing results. In Maryland and Virginia, there is not much prospect of increased production immediately; one establishment in Frederick, Maryland, has been steadily and successfully producing silk for six or seven years, and is every year increasing. It is remarkable, that this establishment, and also that of Miss Rapp, of Economy, Pa., suffered nothing from the disasters of 1840 and 1841. This fact goes far to show that such disasters may be avoided by proper management and due caution. Another establishment near Baltimore, that produced in 1841, about one hundred bushels of cocoons, is preparing for more extended operations the coming season. The proprietor kept a regular account of all expenses, and has satisfied himself that he can produce cocoons at a cost of not more than one dollar per bushel. Taking that sum as the cost of production it must necessarily be admitted to be the most profitable business to which land and labor can be devoted.

There are other views that might be taken to illustrate the prospect of silk culture in the United States. One of these is the fact that it is adapted to every section of the Union alike. If the south has an advantage over the north, in the length of its warm season and cheap labor, these are balanced by the advantage the north has over the south in its healthy climate and industrious and enterprising people. The silk culture therefore, unlike any other interest will never become a sectional interest, and will of course be attended to in all parts of our country. Another of these views, is the facility of transporting silk. In this respect, a very large portion of our country will be directly and largely benefitted. All that portion of the country between the heads of tide water and western river and lake navigation, will be particularly interested in it. To the whole strip of territory, two or three hundred miles wide, and seven or eight hundred miles long, commencing in

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north Alabama, and Georgia in the south, and passing through east Tennessee, Kentucky, western Carolina and Virginia, &c. till it reaches the shores of the lakes, the culture of silk will be something like a substitute for railroads, canals, and river navigation. The products of that region will now scarcely bear transportation to market at all, owing to their bulk, and low value. They, therefore, want a more precious article, and silk stands unrivalled in this regard. The people of that whole region have taken the subject in hand, and have already furnished indubitable evidence of their capability of accomplishing the object. Two hundred pounds of reeled silk of first quality was sent from one establishment in east Tennessee, to the north, for sale, the past fall.

The prospects, therefore, of the silk culture in the United States, must be acknowledged on all hands to be very brilliant. All that is wanted to accomplish the great object, is fully in possession of the people. They have the means in profuse abundance, and they have the disposition; what then, can prevent their final triumph?

The establishment of filatures in the State Prisons of New-York, is an important event for the silk culture. They will immediately furnish a market for cocoons, and will thus give an impulse to the business in that and several neighboring States.

ON THE CULTURE AND BEST VARIETY OF THE MULBERRY.

Northampton, Mass., Jan. 5, 1842.

Henry Randall, Esq.,

Cor. Sec'y N. Y. State Ag. Society.

Dear Sir—Your favor of Dec. 11, asking "a concise treatise on the culture of the mulberry, and its most valuable varieties," is hereby acknowledged, and I should have been pleased to see the remarks of others, rather than offer any of my own, on a subject which will be so important to the interests of the country, when carried out in its various operations.

Respecting "the culture of the mulberry" there is not at this time any need of resorting to the application of *buds*, *cuttings* or *layers*, to increase the number of trees for market.

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In consequence of the tree speculation, they have been sent to almost every section of the country, and may be easily transferred to every farm, without ever resorting to further importations; nor is it necessary to shelter them during winter, for every variety, even the tender multicaulis, has become so nearly acclimated, as to be left exposed, like other trees.

There are a great variety of mulberries spread over the country, having names generally corresponding with the location from whence they were derived. Trees were cultivated with great care and tenderness, while estimated valuable as "golden rods," but such careful nursing, while it promoted a rapid growth of the tree, almost reduced it to the condition of a *tropical* plant. But now, the object is to give no more cultivation than to keep down the weeds; and by such management the trees are rendered more hardy, and the foliage better matured and more valuable.

Respecting "the most valuable varieties" of the mulberry there is a diversity of opinion among silk growers, resulting, probably, from the use of that kind composing their nurseries.

About 20 years ago I was first elected secretary of the agricultural society of Hampshire, Franklin and Hampden counties, but this year have declined election. When I came into office I found the society in a languishing condition; and being desirous of awakening the attention of the members to some new object of agriculture, I contemplated the introduction of silk culture, but finding it too expensive to pay *one dollar* for a tree, not then thinking they could be so easily propagated by cuttings and layers. But believing and hoping that every family can certainly raise enough silk for their own sewings, provided trees could be had cheap, and raised from seed, I wrote to a missionary at Canton, China, a native of this county, requesting him, in behalf of the agricultural society, to procure and forward the seed of that mulberry the most approved by the Chinese, for cultivation, feeding worms and making silk. The seed came, and was sowed in the spring of 1834. It grew rapidly, and developed a leaf nearly as large as the multicaulus, but of a more firm texture, and much heavier. This I called the Canton, or large leaf Canton. During the mulberry excitement it was transplanted in several of the adjoining, middle and southern States. I have a nursery of the same, near Savannah, Ga. So far as my knowledge extends, where it has been used, it has had the decided approbation of silk growers.

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That it is the genuine kind used by the Chinese, I have the evidence,

First. Of the missionary who procured it, and wrote that it was such.

Second. From a volume of Chinese paintings, representing the mode of propagation and culture, a description of the foliage, gathering, feeding, reeling, &c.

Third. Of Sherman Peck, Esq., who had seen it growing in my nursery, and had received it himself from the same missionary in China, and is now using it extensively in one of the Sandwich Islands, and

Fourth. By the recognition of the leaf shown to Dr. Parker and a native of China, who were at my office the summer past, from whom I received many pleasing accounts of the Canton tree, its cultivation, and growing of silk in China. Dr. Parker thought our soil was more congenial to that tree than even China itself, as it developed a larger leaf. I could produce many interesting facts of early and late silk culture in America; the testimony of many practical silk growers, who prefer the foliage of the large leaf Canton, on account of its superior nutricious foliage, and retaining its verdure in greater perfection longer and later in the season than any other mulberry; and that by testing its use, compared with the other varieties, the worms have appeared to prefer it; growing faster, larger, producing more solid and heavier cocoons, which, by the balance, weighed about one third heavier, or as 5 to 8 in favor of the Canton feed.

I have given you my views of cultivation, and what I have found the best adapted to the growth of silk during several years experience, not because my opinion is of so much value as that of many others, but that you should see that I did not neglect your request; nevertheless, if you find any thing worthy of notice, it is at your service.

Having begun some ten years since with a desire of being useful to others, my ardent desire now is to see the silk business carried out for the benefit of the whole country. I have tried almost every variety of the mulberry, and give my preference to the large leaf Canton, for foliage feed, and the Asiatic for branch feeding; but as branches will be more used than formerly, almost every variety of the hardy mulberry will be useful, and they should be diligently cultivated.

Respectfully yours,

DANIEL STEBBINS.

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NEAT CATTLE.

*The "Native" Stock of the United States—Devons—Herefords—New Leicesters—Ayrshires—Alderneys—Holderness—Teeswaters—Durhams—Holsteins, &c.—The most profitable breed.**

By Henry S. Randall.

The domestic ox is not, as is well known, indigenous to America; but was introduced here by our European ancestors, in the beginning of the 17th century. An attempt has been made to trace the origin of our common cattle, especially those of the northern States, exclusively to the English Devon; and it is probable that this breed did mingle largely in the early importations, from the fact that a large portion of the colonists were from the south of England, or embarked from ports in that district, where the Devon, at that period, was the prevailing breed. The characteristics of this variety also, as to horns, color, etc., have always been the favorite ones among the people of the United States. But at the time of the settlement of America, little attention, comparatively speaking, was paid to breeds, or purity of blood; and it is altogether incredible that the emigrants, to whose number almost every port in England, and probably in the United Kingdom, furnished its quota, should have been at the pains to procure the Devons. To say nothing of the preferences which each would naturally have felt for the cattle of his own district, it would argue a degree of care and solicitude on a subject, then deemed of little importance, altogether incompatible with the character and motives of the men who colonized the new world. Many of them were probably scarcely aware that there was such a breed in existence! Besides, the Dutch in New-York and the Swedes on the Delaware, introduced the cattle of their respective countries, which were subsequently incorporated with the common stock. Although, as we have before remarked, the Devon characteristics prevail, the practiced eye will readily detect traces of this varied lineage. Few or none of our common stock equal the North Devon, in the finish and beauty of their proportions, more generally perhaps resembling the Sussex ox;† and our cows are better milkers. Our

* Portions of the following communication have previously appeared over the author's signature in the Cultivator. They are republished to give a connected view of the various breeds of cattle which present their claims most prominently to the notice of the American farmer.

† A coarser variety of Devons.

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black and polled cattle give indications of their Welsh and Galloway extraction; and it is but a few years since, on the Mohawk and Hudson rivers, there existed undoubted remnants of the stock imported by the Dutch settlers from Holland.

To speak of the merits of a race so varied, as a whole, would evidently be preposterous. In New-England, and in many portions of the middle States, superior care in breeding, and selection, have done much to establish a breed, which though inferior to some of the foreign ones, in the prime points, when developed by suitable feed, and attention in other respects, are nevertheless remarkably adapted to the exigencies of a country whose systems of husbandry are inartificial, and whose arrangements for providing and equalizing feed throughout the different portions of the year, and for adequate protection in winter, are crude and imperfect. Patient of the short keep incidental to thin, or poorly cultivated soils, often rendered still more scanty by our long, dry, scorching summers; capable of withstanding those sudden and extreme vicissitudes of weather which characterise the climate of the northern States, with little or no shelter; this variety are also valuable for dairy purposes, and although comparatively small in carcass, are not unfrequently well formed, and fatten kindly. The milk and beef of the American cow, too, are usually of a good quality—contrasting most favorably with that of several varieties introduced ostensibly with the design of improving them.

As a whole however, there can be but little doubt that the cattle of the United States require a decided improvement, to render them of the greatest practicable value to our agricultural population. In the more favored sections, improved systems of husbandry are beginning to prevail. Nutricious grasses have succeeded the wild and dwarfish varieties, and our farmers, instead of depending on such of the latter as spring up spontaneously on worn out soils, sow the more valuable varieties with a liberal hand, and on lands not exhausted by long continued tillage. The value of roots to preserve the health and condition of animals, and to continue the growth of young beasts (ordinarily to a great extent suspended,) during the five months in which they would otherwise be confined to dry food, is beginning to be understood. The practice of stabling cattle, or protecting them by warm sheds in winter, is becoming common. Under such circumstances it ceases to be a matter of necessity that the American farmer should give preference to a breed, merely on the ground that it is capable of enduring

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the greatest amount of starvation and exposure. And although none other than a variety decidedly hardy, will ever succeed in the rigorous climate of the northern States, we may, under the improved systems already alluded to aim at the increased size, or at least an approximation to it, and the other improved points of the best foreign varieties; and this with the full assurance, that although these are only to be obtained by more expensive management, the additional expense so incurred is amply compensated.

The question then presents itself, how is this improvement in our cattle to be effected? Shall it be done by a careful course of breeding and selection from our native stock, by the entire substitution of a more valuable foreign breed, or by a judicious intermixture between the best breeds of other countries and our native stock? And in either of the latter alternatives, to what foreign variety are we to resort as the basis of the desired improvement? Before attempting to answer these questions definitely, it may be well to examine the claims of the most distinguished foreign varieties, and to ascertain what light experience has already thrown on the subject. And first of the Devon.

The DEVON, in symmetry and beauty of proportion, scarcely acknowledges an equal. His delicate limbs, deep red color, beautifully tapering horns, high and spirited action, united with docility, in the yoke, and a show of blood falling little short of that of the thorough bred horse, have always rendered him a favorite with breeders of taste, in his native country. Favorable specimens of them were imported into the United States in 1817, from the herd of the Earl of Leicester, (then Mr. Coke,) and some valuable animals from the same yard, were introduced into New-England, where they attracted much attention for a period, and were extensively crossed with our native stock. Notwithstanding his many excellencies, it cannot be said that the introduction of the Devon was attended with any striking benefits. Singularly suited by his rapid gait for the plough, on the light lands of Norfolk, and some other parts of England, his peculiar excellence, his activity, has been found to avail him little on the more generally tenacious soils of the United States. In strength, the Devon ranks only in the fourth or fifth class of British oxen. The cross with our common cattle produced an animal somewhat improved from the latter in his points, but with no great additional value for the yoke, and inferior for the dairy. Yet a slight admixture of Devon blood, has been thought advantageous in modifying the coarseness of heavy, bony breeds, like

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the Holderness, and it has ever been, strenuously advocated as a cross with the improved short horn, by distinguished English breeders. But others object that the Durham gains nothing by the admixture in his propensity to take on flesh and fat; while size and milking properties are sensibly diminished. This was decidedly the opinion of Col. Powell, who instituted numerous experiments. The variety thus produced would doubtless be capable of enduring a shortness of keep, incompatible with the superior size of the pure short horn, and thus be better adapted to high and less fertile lands; but there are other breeds which as a cross with the short horn, would be as well calculated to attain this end, without so great a sacrifice of milking properties.

The HEREFORD ox is supposed to be descended from the same stock with the Devon, but is larger, heavier in the bone, usually of a darker red or brown color, with a white face, throat, and belly. The accompanying portrait is that of Mr. Corning's superior cow "Matchless," imported from England in 1840.

The Herefords are shorter legged than the Devon, hardier, and kindlier feeders, but like that breed are inferior as milkers. Upwards of twenty years since the Hon. Henry Clay of Ky. imported two pair of Herefords, and "bred from them and their crosses until induced to discontinue in consequence of an apprehension that he should breed in and in too far, which in some instances he found to be the case." Mr. Clay remarks, "the Herefords resemble the Devons—the race of New-England cattle, and a fine race it is. But the Herefords have the advantage of them in greater size, greater length, more power, consequently, for draft, I think are quite as quick in the step, and as good at the pail.* In instituting a comparison between the Herefords and the short horns, he states it as his opinion, that the former make better work cattle, are hardier, and will, upon being fattened, take themselves to market better than their rivals." On the other hand, he says, "the Durhams I think have the advantage in earlier maturity, in beauty, and in the quantity of milk which they will yield." He adds, "in Ken-

* It is probable Mr. Clay's Herefords, being selected expressly to try the experiment of their success in the United States, were chosen from the best milkers, both as to the individual and the family; and it goes to show that selection and breeding in reference to this point, for a few generations, might effect great changes in a breed, whose milking properties have been so generally neglected.

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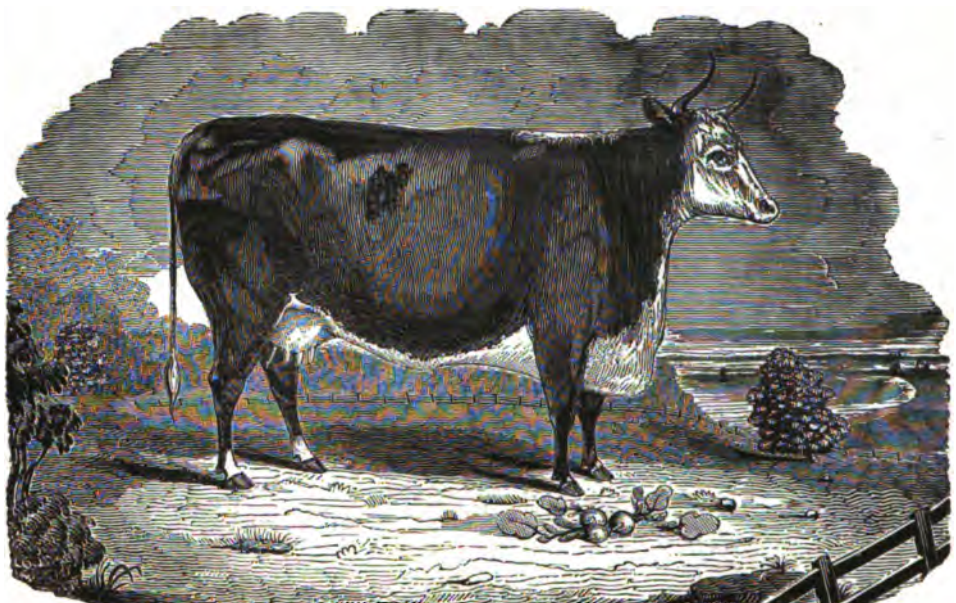

HEREFORD COW—MATCHLESS,

Imported by Messrs. CORNING & SOTHAM, Albany,

To which was awarded a Prize of $20, at the Fair of the N. Y. S. Agricultural Society, at Syracuse, Sept. 1841.

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tucky the Durhams are generally preferred to all other races."* Other importations of Herefords were made at about the same time with that of Mr. Clay, and at several subsequent periods, but as yet they have failed to secure an extensive adoption, either in a pure or mixed state. Some beautiful, and we presume highly advantageous specimens of the breed, have recently been introduced into this State, and are now owned by the Hon. Erastus Corning of Albany.

There can be but little doubt that in the points regarded by the butcher, the Herefords have few rivals, though perhaps the grazier would prefer a variety maturing somewhat earlier. In a country where feeding properties are regarded as the prime point, and the demands of whose markets will render it profitable to breed and graze a race of cattle exclusively for the shambles, the Herefords, from their aptitude to take on flesh, from the high quality of their beef, and from their endurance of travel, will always be deservedly held in high estimation. And although it cannot be denied that a more popular breed have, within a few years, superseded the Herefords in a large majority of the more fertile districts of England, the latter not unfrequently bear away the palm from their more successful rivals, at the English agricultural exhibitions; particularly where influences prevail arising from the proximity of large markets.

The great draw-back on the value of the Herefords, either pure or crossed, for the wants of the farmers of the middle and eastern States, is their lack of milking properties. Here they are concededly, sadly deficient. All English authorities, early and modern, agree on this point. Lawrence,† after quoting the encomiums of Marshall on this breed, in other respects, significantly remarks, "as milkers they have nothing in particular to boast of," and Youatt, the best living authority, who is unprejudiced, and uninterested in the decision of the question, thus summarily disposes of their claims in this respect. "The Herefords are far worse milkers than the Devons; this is so generally acknowledged that while there are many dairies of Devon cows, in various parts of the country, (none of which, however, are very profitable to their owners,) a dairy of Herefords is rarely to be found."‡

* Extracts from a letter which we had the pleasure of receiving from this distinguished breeder in 1840.

† Lawrence's "Treatise on Cattle."

‡ Farmer's Series, vol. on cattle, p. 31.

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Whether a breed so deficient in the point regarded in a large portion of our country as the prime one, would, in such portions, be the most profitable one to the farmer, either in a pure state, or employed as an ameliorating cross with native stocks, perhaps admits of little question. This is much, we have ever thought, to be regretted, as the Hereford would seem, in many respects, not only a valuable animal, but well adapted to the circumstances of our country. In the remote western States, on whose immense natural pastures, early maturity is less a matter of consequence; where dairying properties are little regarded, provided the cow will yield sufficient milk to properly rear her progeny; and where beef cattle must be drove great distances to market, there is little doubt that the Hereford would prove an invaluable breed.

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The NEW LEICESTER, spoke into existence, as it were, by the commanding genius of Bakewell, were derived from the original Long Horns of the midland and northwestern counties of England. The Lancashire or Craven, as this original variety is generally denominated, were characterized, at least the better portion of them, by their length and roundness of carcass, and by giving peculiarly rich milk, though in moderate quantities. They were large, coarse boned, but possessing a considerable, and sometimes a marked tendency to fatten. A smaller variety of the same breed, generally inhabiting mountain and moor lands, according to Mr. Youatt, gave milk as superior in quantity as in quality. Out of these materials, Bakewell formed the New Leicesters, which, for aptitude to acquire external fat and early maturity, became almost unrivalled. He reduced the size, and especially the bone of the old long horns, and under his moulding hand, the new variety reached a finish and beauty unknown in any other breed of the day. Unfortunately, however, milking properties were, to a considerable extent, sacrificed by him. The Leicesters, or "Shakspeares," as they are more usually styled in the United States,* were of different colors, but more generally red, with finch or "lined" backs, as they are termed, in this country. Long, slim, tapering horns, projecting forward and downward, and turning up at the points—sometimes falling down the sides of the head in a curve, the points nearly meeting in front, is also characteristic of the race. The New Leicesters, owing to that cardinal defect

* From Mr. Fowler's bull of that name, the most famous stockgetter the long horns ever possessed.

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in Bakewell's system, breeding from too close affinities, and to the appearance of a rival in the improved short horns, destined to sweep away all opposition, have nearly disappeared, though a long horned cow received the first prize, as the best fatted cow, at the December show at Smithfield, as late as in 1839. Grades between the short horn and the old long horns, are still cherished in many of the midland dairies of England. A cross between the improved variety and the short horn are still more common, and answer excellently for the purposes of the butter dairy. The milk of the short horn is improved in quality, though diminished considerably in amount, and the cross bred animals are supposed to be peculiarly hardy and unsubject to disease. Long horns of various grades between the old Lancashire and the improved Leicester, have, at various perods, been imported into the United States, and we have adverted more particularly to a breed which, in its distinct state, has almost ceased to exist in its native country, from the fact that superior animals of the improved variety were introduced into this State by an English immigrant, the late Daniel Adcock of Otsego county, before the in and in system of breeding had so deteriorated the parent stock. It might present a curious question how far the change of climate, feed, etc., may have tended to preserve the characteristics of a variety which lost them so suddenly in their native country; for certain it is, that the stock of Mr. Adcock not only possessed, but retained many very superior points. We well recollect hearing one, concededly of the most experienced and skillful breeders of the United States, declare that there was no stock in the country which he should more fear as a rival of the short horn, than the produce of a judicious cross between Mr. Adcock's New Leicesters and the short horns. Mr. Adcock wisely adopted this cross, and the result was a beautiful subvariety, possessing much of the substance of the short horn, with the peculiar fineness in the famed characteristic of the New Leicester. Some of them are peculiarly delicate handlers, with thick, silky coats, and are rich, though not uncommonly deep milkers. It is worthy of remark, that in this county (Cortland,) they have repeatedly carried away the first prizes, even with full blooded short horns, for their competitors.

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The AYRSHIRES, a little more than fifty years since, according to Mr. Aiton, (the best authority on the subject,) were "of diminutive size, ill-fed, ill-shaped, and they yielded but a scanty return of milk;

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* * * the chine of their backs stood up high and narrow, their sides were lank and short, their hides thick and adhering to their bones, and their pile coarse and open." In short, there can be but little doubt that they would gain nothing by comparison with the most ordinary American cows. We had adverted particularly to their then condition, because in following them up to their present high degree of excellence, we find a lesson fraught with peculiar value to the American farmer. Our breeders have certainly as good, or a better breed on which to commence their improvements, and the ameliorating crosses which made the Ayrshire cow what she is, are equally within our reach. Though from the length of time which has elapsed, and the imperfect record, or rather the absence of all record, which is too generally kept of such transactions, little is known of the progressive steps attending the cross, and though there are some who seem disposed to call in question the fact, whether it ever took place, it is generally conceded that the present celebrated race were produced by a judicious admixture between the original cow of Cunningham, Kyle, and Ayrshire, (Mr. Aiton's description of which we have already quoted,) and some of the earlier short horns, from the banks of the Tees. The benefits attending the cross were accelerated, and no doubt much heightened by the moist, mild climate, and rich herbage of that district of Scotland where the Ayrshires principally prevail, pronounced by Mr. Youatt, "the finest dairy county in Scotland, and equal perhaps to any in Great Britain." This improved race is of a red and white color, beautifully mottled, short in the leg, the horns small and fine, the head and neck delicate, the latter thickening properly toward the shoulders, the carcass deep but inclining to be flat, and the loin and haunch, compared with the short horn, narrow. Five gallons of milk daily, for two or three months, after calving, three gallons for the next three months, and one gallon and a half for the remaining four months, in which she is milked, is stated as the *average* amount given by the Ayrshire cow.* As a milker, she of course, yields to the larger short horn, nor will she take on an equal amount of flesh and fat, on the richer soils of England; and on the bleak and heathery hills of Scotland, the various breeds of black cattle would thrive and fatten where the Ayrshire would scarcely obtain a subsistence. But on medium soils, there is perhaps no breed, size and the consumption of food being considered, which presents a much better combination of milking and grazing qualities. Of their value as working oxen, our

* Farmer's Series

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authorities are silent, and we do not know that any experiments have been instituted among the few imported into the United States. If they are good in this respect, such a breed would be a desideratum in many portions of our country. But as we have before hinted, we believe this desideratum can be supplied more easily and cheaply by materials within our reach. This point will be discussed in its proper place.

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The ALDERNEYS are a small breed of French cattle, which have been fashionable in the parks and pleasure grounds of English gentlemen, on account of their diminutive size, and the peculiar richness of their milk. Col. Powell, after fifteen years' experience with them, pronounces them, in his somewhat summary way, "an unthrifty, dwarfish, savage breed;" and Parkinson remarks, "they are of as bad a form as can possibly be described." Their appetite is voracious; an Alderney cow consuming nearly as much as a Short Horn, which is three times her size.† Some of them have been imported into our country, but probably with no very great general advantage.

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The HOLDERNESS. Some time during the 18th century according to tradition, short horned cattle were introduced into the north-eastern counties of England, from the adjacent continent, and mingled with the original breeds of the country. The produce of this cross are indiscriminately termed Yorkshire or Holderness cattle, by the early writers; the former name derived from that of the county where they first began extensively to prevail; the latter from a town in the same county, where either they were originally introduced, or where probably certain improvements in the breed were first attempted. Improved individuals of this variety, subsequently, as we shall see, attained the name of Tees-water, and finally of Durham, or "Improved Short Horn."

Marshall describes the original Holderness as "thin quartered, too light behind and too coarse before, large shoulders, coarse necks and deep dewlaps." Lawrence, after passing a high encomium on a selection which might be made from them, describes the remainder as "long, gaunt, deep carcasses, without adequate substance, placed on high stilts, of the coarsest timber, slow feeders," &c. They were also, by the consent of all the English writers on the subject, thin skinned, in-

† Farmer's Series

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clined to be tender constitutioned, bad provers, their flesh coarse and often dark or "liery." In one particular, however, they were from the first preëminent, namely, in the amount of milk given by them, though it was not of so rich a quality as that yielded by some other breeds. In York, Durham, and the adjacent counties, over which this breed rapidly spread itself, early attempts were made to improve the form, without sacrificing their milking properties. Marshall gives a singular account of one of these efforts. After describing the Holderness, as we have already quoted, he says:—"This, from being found disadvantageous to the butcher, * * * * the breeder attempted to enlarge the hind quarters; and had he stopped when he got the happy medium, he would have wrought a good work; but the fashion was set—cloddy buttocks were in estimation. The first variety of this species of cattle, which I can recollect, was a thick, large boned, coarse, clumsy animal; remarkably large behind, with thick, gummy thighs; always fleshy, but never fat, and the flesh being of a bad quality. This, however, was not the worst: the monstrous size of the buttocks of the calf was frequently fatal to the cow. * * * * They were probably the worst breed the vale ever knew." We have here an exact description of a variety existing in many parts of our own country, known popularly in this, and some of the adjacent counties, as "Devonshires," though their horns, to say nothing of their posterial deformity, proves this to be an entire misnomer. From the singular projection behind, they are commonly known also as "Pumpkin rumps;" and although large and rather showy, they are certainly the worst breed in the United States.

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The TEESWATERS. In more judicious hands the short horns rapidly improved. Among the spirited breeders, on the banks of the Tees, (which divides York and Durham,) they rapidly assumed a distinctive character; shorter legged, more compact, the milk but slightly diminished, and this more than counterbalanced by its increased good quality,—better feeders, hardier, carrying more fat, and their flesh more marbled and finer in grain. This signal improvement was effected, it is generally supposed, by a system of judicious crosses. An importation of cows from Holland, is usually referred to as one of these, and Mr. Berry conjectures the wild white breed of England to have furnished another. Hence the strong admixture of white in the Teeswater and the Durham. The improved variety, denominated indiscriminately,

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Teeswater or Holderness, immediately became the general favorite in the large metropolitan dairies and milk establishments. For milking properties, and when no longer used for that purpose, aptitude to take on flesh, England had never possessed so valuable a breed.

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The DURHAM or IMPROVED SHORT HORN. At this epoch, and with such materials, Mr. Charles Colling commenced his career as a breeder. His wonderful success has been ascribed by some, to chance; but the Rev. Henry Berry, the best possible authority on this subject, thinks otherwise. He pronounces it the result of "a deliberate and well considered plan." Mr. Colling found the Teeswater yet possessing some of the faults of the old Short Horns. From their overgrown size, they were too frequently coarsely and loosely formed, and they were yet entirely inferior to what the Durhams afterwards became, in aptitude to fatten and early maturity. Mr. Colling was remarkably favored in his efforts to counteract these defects, by the possession of the bull "Hubback," the great ancestor of the improved race. He was smaller than the Teeswater, while "his flesh, hide and hair," Mr. Berry remarks, "were seldom equalled." On account of his remarkable disposition to take on flesh, he soon became useless. The same qualities marked his dam.

Another move of this celebrated breeder is deserving of particular attention, not only from its practical effects, but for the valuable lesson which it conveys. We allude to the cross with the Galloways. This breed were smaller, more compact, better ribbed home, and hardier than the Short Horns, qualities which Mr. Colling was desirous of engrafting on the latter. He also saw the necessity of avoiding that in and in system of breeding which, as we have seen, swept away the once little less famous New-Leicesters. The experiment, though not without its detractors among a class of breeders, who view all innovations on established blood with little favor, has generally been regarded as a decidedly successful one.

The "Alloy," as this cross was termed, brought better prices at Mr. Colling's great sale than any other family. The stock of Mr. Whittaker, so long preëminent in England; of Col. Powell in Pennsylvania; Mr. Rodman in New-England; General Van Rensselaer and Mr. Rotch in this State, and of the distinguished breeders of Ohio, Ken-

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tucky, and other western States, have been principally, and in some instances exclusively, of the Alloy strain of blood. The four bulls which received the first prizes in the first class, at the late fair of the New-York State Agricultural Society at Syracuse, as well as every other one mentioned in the report of the viewing committee with commendation, (four or five in number) are, without exception, of the Alloy blood. Three of these, "Archer," "Nero," and "Astoria," which received the first, second and third prizes, we have the pleasure of laying portraits of before our readers. Mr. Sherwood's bull, *Archer*,* forms the frontispiece of this volume, Mr. Prentice's *Nero*,† and Mr. Bement's *Astoria*‡ are here given.

But to return to the history of the Short Horns. It is unnecessary at this time to follow the progressive steps which marked their onward career. While it is admitted that in the hands of some breeders, whose attention has been turned exclusively to the carcass, their milking properties have deteriorated, it is well known that in other hands, they have fully maintained their equality with the Teeswaters as milkers, while in early maturity, kindly feeding, proof and quality of flesh, they decidedly surpass them. In early maturity they have, confessedly, no rivals, being ready for the butcher from one to three years earlier than the other English breeds.§ It is not wonderful that a race, presenting such a rare combination of excellencies, should soon become the favorite of the English breeders. The Long Horns have disappeared before them, or been merged in them by repeated crosses, in the northern and midland counties, while in the south they have been rapidly

* *Archer*, got by Rolla, d. Adeliza (bred by Mr. Whittaker,) by Frederick (1060) g. d. Adela by Orpheus (473,) g. g. d. Alfrede by Alfred (23) g. g. g. d. by Windsor (689,) g. g. g. g. d. Old Daisy bred by Mr. C. Colling, by Favorite (252) g. g. g. g. g. d. by Punch, (531) g. g. g. g. g. g. d. by Hubback, (319).

Rolla, got by Patriot, (2412,) d. Romp by Admiral, (1608,) g. d. Moss Rose by Young Denton, (963,) &c. See Herd Book.

† *Nero*, red and white, calved Aug. 14, 1837; bred by, and the property of, E. P. Prentice, Albany; got by Ajax, dam, Trim, g. d. Upright, by Washington, 1566, g. g. d. Princess by Washington, 1566, g. g. g. d. Red Lady, by Washington, 1566, g. g. g. g. d. Pansy by Blaize, 75.

‡ *Astoria*, white, with a few deep red spots on neck and body, bred by, and the property of, C. N. Bement, Three Hills Farm, near Albany, New-York; calved July 14th, 1838; got by Ajax, dam, Delia by Carlos, g. d. Dulcibella, by Frederick, g. g. d. Delicia, by Major, g. g. g. d. by Comus, g. g. g. g. d. by Marske, g. g. g. g. d. by Mr, Wetherell's.

Ajax, bred by Gen. Van Rensselaer, got by Washington, dam Red Lady, g. d. Pansy, by Blaze, g, g. d. Primrose, by Mason's Charles, g. g. g. dam by Blythe Comet, g. g. g. g. d. by Prince, g. g. g. g. g. d. by Geo. Coate's Patriot.

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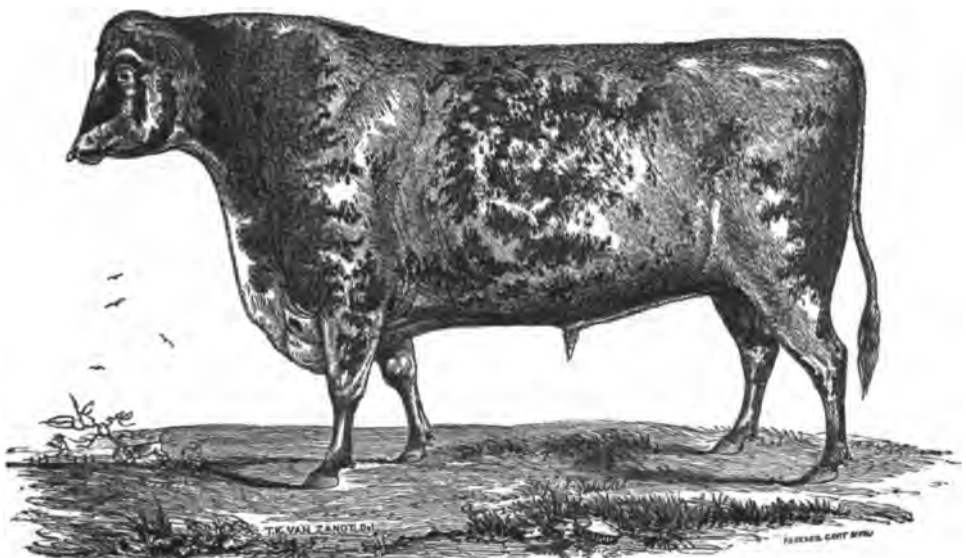

SHORT HORNED BULL—NERO,

Owned and bred by E. P. PRENTICE, Esq. Mount Hope, Albany,

To which was awarded a Prize of $12, at the Fair of the N. Y. State Agricultural Society, at Syracuse, Sept. 1841.

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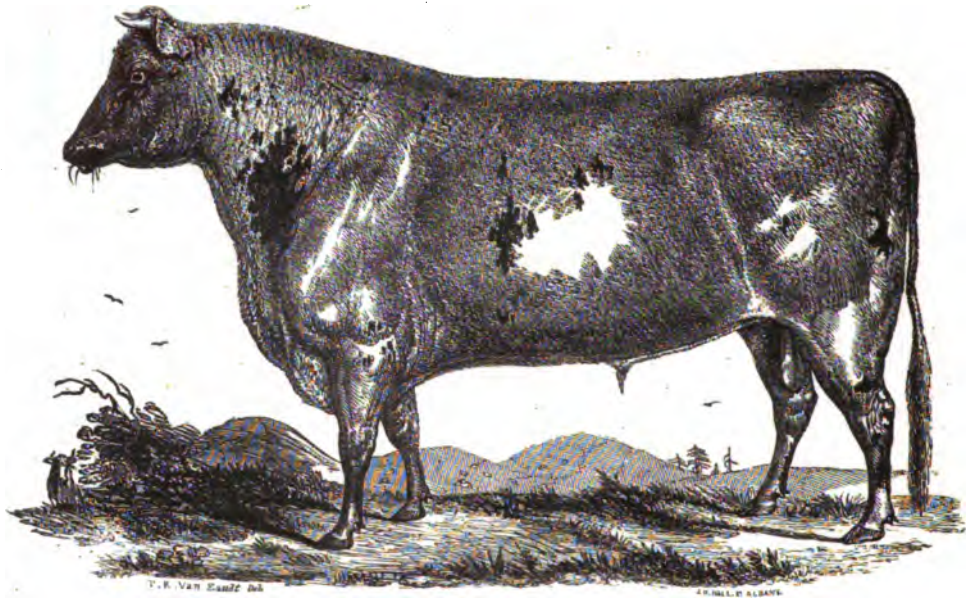

ASTORIA,

Bred by and the property of C. N. BEMENT, ESQ. Three-Hills Farm, near Albany, 3 years old,

To which was awarded the N. Y. State Society's Premium of $8, at the meeting held in Sept. 1841, at Syracuse.

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superseding the Hereford and the Devon. They have been engrafted on the Holderness Short Horns of the city milk establishments almost universally, and with manifest advantage. The produce, with milk slightly diminished, but of increased richness, yields as profitable a return in the dairy, while the value of the carcass for the grazier is nearly double in value.

Short Horns of every variety, from the gaunt, unsightly animals described by Lawrence, to the most finished specimens of the improved family, have been repeatedly imported into the United States. The miserable, cloddy-buttocked variety have already been adverted to. There are also among us, large and not unsightly Short Horns, probably a modification of the above, poor milkers and bad provers, which are popularly known as "English cattle," though they sometimes borrow the name of Teeswater or Durham, to suit the purposes of the seller. They are usually red or brown, with dark muzzles, their horns short, fine and tipped with black. A Holderness bull, from North Allerton, on the Arve, was imported from England a few years since, and finally was driven to Oneida county in this State, where he remained until he died. Though a monster in size, and marked with the characteristic defects of the earlier Short Horns in his form, his get, with the best common cows, were valuable as milkers, and not deficient in symmetry. Holsteins, or Dutch Short Horns, similar to and descending from the same stock with the Holderness, have been introduced into the United States. In color they are black and white. Animals of various degrees of merit, bearing the name of Durhams, but not of pure blood, have also been introduced at various times; sometimes by emigrants, and not unfrequently by speculators. And finally, pure Improved Short Horns, in considerable numbers, have been imported by spirited breeders in several of the eastern, northern and western States. The two following portraits are of Mr. Sherwood's cow "Stella," * which received the first premium at the late State fair, and Mr. Prentice's "Moss Rose,"† but recently imported from England.

We now return to the question, *how are the desired improvements to be effected in the cattle of our country—by a course of breeding and selection from our native stock—the substitution of a foreign variety—or a cross between the best foreign variety and our native*

* *Stella* out of Stately (bred by Mr. Lee) by Young Denton, etc. See Herd Book.
† *Moss Rose* out of Viola by Barden (1674) g. d. by Remus, (550) &c.

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breeds? To the first proposition, the objection arises that it would require a long time, and probably many fruitless experiments, before the common American cow could be brought, without the intermixture of other blood, to possess the desired properties. The end can be accomplished more cheaply and expeditiously by other means. On the whole, there can be but little doubt that it is to the latter source that the American farmer must look for the basis of this ameliorating change. In this proposition, we wish to be distinctly understood. We do not assert that the produce of any cross we might thus make, would surpass in value breeds already in existence; but the entire substitution of a foreign variety for our own, presupposes an expenditure of time and funds utterly out of the question. Besides, we consider it extremely doubtful, whether in the end, the outlay could be justified on the principles of a sound economy. The experiments of the English breeders have taught us, and experience at home has amply demonstrated, that there is scarcely any breed so defective, that it can not by judicious and continued crosses, be brought to almost any desirable pitch of perfection. We have seen that the Ayrshires, sixty years since inferior to the American cow, have been rendered second only to the Short Horn, in dairying properties, by a cross with that race. We have seen the gaunt, unsightly, dark-meated, tallowless and slow-feeding Short Horn, brought to its present degree of perfection; to possess qualities of precisely an opposite character to its original ones, by repeated crosses. And we have seen the American farmer, by following the example of the inhabitants of the southwest coast of Scotland, viz. by engrafting a Short Horn cross on the native stock of the country, producing a variety equalling the Ayrshire, as we believe, in every desirable point.* Before discussing this point further in this place, we will revert to the second branch of the inquiry.

To what foreign variety shall we resort as the basis of the desired improvement in our race of cattle? On a careful comparison of the characteristic merits and defects of our own cattle, with the correspon-

* This opinion, thrown out more than a year since, we find fully corroborated by Mr. A. B. Allen, who has recently had an ample opportunity of inspecting the Ayrshires in their native country. We had not supposed, however, that there was any particular resemblance between the two races, believing that the cross with the American cow was larger and finer in form, and of earlier maturity than the Ayrshire. Two imported Ayrshire cows, which we recently saw in the yard of C. N. Bement, Esq. near Albany, did bear no inconsiderable resemblance to half-bred Durhams, though we have, we think, seen many of the latter superior to them. We are informed, however, that the Ayrshires do not ordinarily bear any marked resemblance to the Durham or their crosses.

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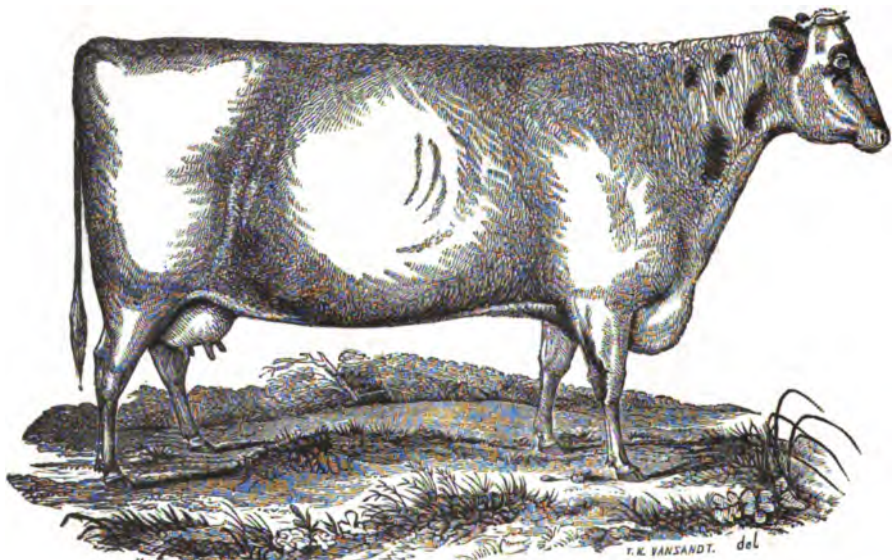

SHORT HORNED COW—STELLA.

Bred by F. ROTCH, Esq. owned by J. M. SHERWOOD, Esq. Auburn, New-York.

To which was awarded the Prize of $20, at the Fair of the N. Y. State Agricultural Society, at Syracuse, Sept. 1841.

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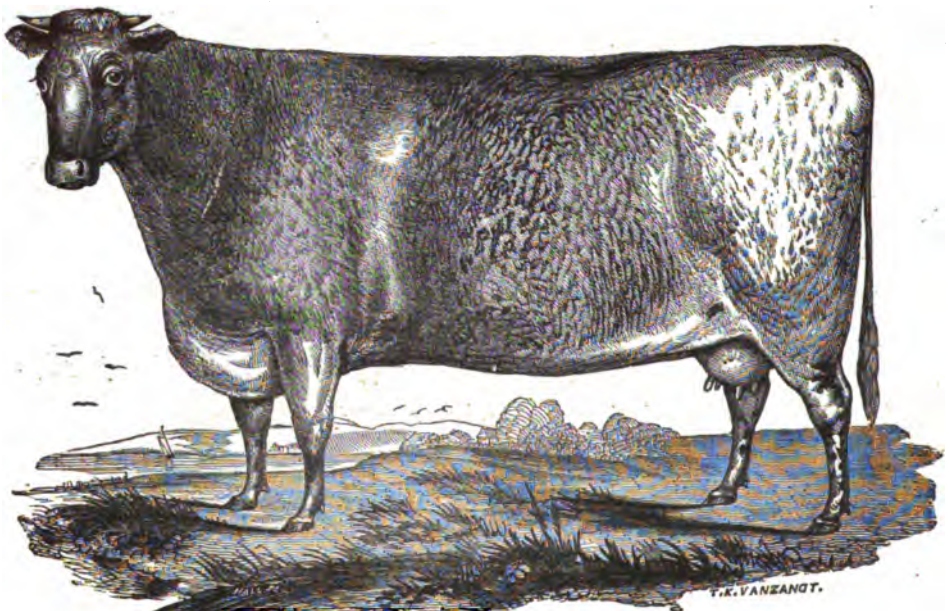

MOSS ROSE—A SHORT HORNED COW.

Imported and owned by EZRA P. PRENTICE, Esq. Mount-Hope, near Albany.

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ding ones of other varieties, we arrive, unhesitatingly, at the conclusion that to the improved short horn we must look for the basis of this ameliorating change. A cross with the Devon or Hereford would sacrifice milking properties; the dwarfish and ill-shapen Alderney is not to be thought of; the Ayrshire, or the long horn, possess no excellencies that the Durham does not possess, in a greater degree; and the Holderness and the Teeswater short horns, compared with the improved race, are as the crude ore to the manufactured and polished metal.

Experience, as we have before stated, has already proved that the cross between the Durham and our native race is a most judicious one, and examples are not wanting of it in all parts of our country. A few years since a bull, sired by Wye Comet, was introduced into this county (Cortland,) and his progeny are remarkable for their size, beauty and milking properties. They are but few, as most of our people, at that period, who gave a thought to the subject of the improvement of their cattle, and they were not numerous, preferred the cloddy buttocked Yorkshires! Yet, there is not perhaps one of the immediate descendants of this bull that would not be readily selected out of a large herd of the best common cattle, for its superior beauty of form. Pure bred short horn bulls have since been introduced into this and several other counties of the State, and their produce from common cows have invariably presented the same valuable characteristics, and the same manifest improvement on the points possessed by their dams. The "Cream Pot" breed, so called, which has obtained so much celebrity in Massachusetts, is simply the first and second cross between the Durham and our native stock. The cow "Cream Pot," the origin of the family, whose milk produced at the rate of 21 lbs. of butter a week, on grass feed only, was the produce of the short horn bull Cœlebs and a native cow, "deep red in color, and presenting no leading points of any particular breed."* The first cross between choice native cows and the improved short horn, has universally resulted decidedly successfully; indeed, the very beauty of the produce, has tended to prevent further attempts at improvement, by encouraging farmers to breed directly from half and three quarter bred bulls. They frequently lack little of the beauty of their sires, and their services are to be more cheaply procured. But the characteristics of a variety thus obtained are not sufficiently stamped on them in the first or second cross, to be perpetuated with any great degree of certainty in their offspring. In the language

* See Mr. Jaques' catalogue of these cattle and their pedigrees, 1841.

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of the Rev. Henry Berry, "to breed from the produce of a cross *directly among themselves*, will lead to the results which have induced many persons, without due consideration, to believe conclusive against crossing; but to take one cross, and then return and adhere to one breed, *will, in the course of a few generations*, be found to stamp a variety with sufficient certainty."

Repeated experiments have amply demonstrated, that interbreeding between the Durham and our common race, if conducted on the principles advocated by Mr. Berry, viz: by a constant resort to the pure blooded bull, is attended with a decided and manifest improvement of the produce *in every successive generation.* The bull selected should be small of his kind, fine in the bone, unusually full in the crops and bosom, and wide in the loin and haunch; points in which the common breed are defective. He should be chosen, too, from a family of decidedly good milkers. If the bull is large of his kind, the produce are generally coarse, and marked with the defects which attend great disparity between the size of the sire and dam. The dam should be as good in the points indicated in the bull, as our means of selection admits of; short legged, compact, deep in the girth, and a plentiful and steady milker.

We have already expressed the opinion that the grades between the Durham and our native stock equal or excel the Ayrshires, which we regard as the second European breed,* in value, for the purposes of a dairying country. And having attained thus much, why need we stop here? We have seen that one of the most highly prized and favorite families of the short horns, commanding prices equal to any other, are, to say nothing of earlier crosses, but *grades* between the short horns, and the small, compact, hornless breed of Galloway. The cow "Lady," the mother of the "Alloy," which at Mr. Colling's sale commanded a price exceeding $1,000, (although 14 years old,) was but a seven-eighths short horn! "Countess," her daughter, nine years old, sold for $2,000; "Laura," another daughter, for $1,050; "Major," a son, for $1,000; and "George," another son, (a calf) for $650. These of course possessed but fifteen-sixteenths of short horn blood! Is it to be supposed that the Galloway cow, the great grand dam of "Lady," fortunately selected by Mr. Colling for this experimental cross, was the only animal then or to be in existence, which could

* Under the first breed we design to include all the different varieties of the short horns.

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MR. RUST'S FAT OX.

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weigh its blood with that of the Short Horn without deteriorating it; or that Mr. Colling is the only man who will ever exist capable of conducting such an experiment successfully! Such an assumption, it strikes us, savors strongly of prejudice or empiricism. The fact that it has been done, shows that it is again practicable. Let cows be selected from our native stock, possessing the greatest combination of desirable points, and crossed with Short Horn bulls; let the female produce be bred to properly selected Short Horn bulls, and this course continued until say the sixth generation. Does any one suppose that among any considerable number there would not be many which could be in no way distinguished in their appearance or properties, from the most aristocratic short horn? The produce of the sixth cross would possess sixty-three sixty-fourths of Short Horn, and one sixty-fourth of native blood. But a small portion of tne animals whose pedigrees are given in thc herd book can trace back an unadulterated short horn pedigree through this number of generations. The far famed "Comet" stops at the sixth, and "Favorite," his sire, perhaps as renowned a stock getter as the short horns ever possessed, at the fifth. "Hubback," usually regarded as the great ancestor of the race, possesses little pedigree beyond that which rests on conjecture. Is it claimed that although not in the herd book, these animals spring from a long line of short horn ancestors? This is but hypothesis, and in a country where cattle are so constantly changing their position, as in England in being collected at markets, and in their transference from the breeding to the grazing and dairying districts, too many opportunities occurred for a mingling of blood (particularly at a period when pedigrees were little regarded,) to allow us to rely with certainty on any breed's having been preserved pure. And the "Alloy," as we have seen, one of the most popular families of the short horns, can at all events make no pretension to a pedigree beyond (or a deep one even within) the herd book. But granting the hypothesis to be correct, the coarse, early short horns were every way inferior, except in the single property of milking, to a selection which may be made from American cows. It is to be feared that many are far too prone to underrate our native stock. That it has produced animals which would suffer little by comparison with those of any other breed, let Mr. Rust's ox, on the opposite page, bear testimony.* There is no good reason to suppose that this noble animal

* This ox is seven years old. His live weight on the 19th of February, 1841, was 2,360 lbs.; on Jan. 16th, 1842, 3,400 lbs.; being a gain of 1,040 lbs. in less than eleven months, or up-

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possesses a drop of any foreign blood, other than that introduced by the first settlers of the country,

If then, the sixth cross between the short horns and the American cow would produce animals, in all respects, as individuals, equalling the short horn, wherein would they, or at least a selection of them, be actually inferior to the thorough bred animal? No one will contend mere pedigree is of any consequence, except as *insuring a hereditary transmission of qualities*. The alloys, and the earlier short horns were found to transmit their qualities to their offspring with as much certainty as they now do, long before the former possessed, or the latter are known to have possessed sixty-three sixty-fourths of short horn blood. We have known instances of seven-eighth and fifteen-sixteenth blooded animals doing the same. And every one has seen animals of these grades oftentimes, individually, superior to many of the pure blood; indeed, fully up to the average of the improved race. Mr. Berry admits that a cross, if afterwards bred steadily towards the pure blood, will, "*in the course of a few generations, be found to stamp a variety with sufficient certainty.*" If six crosses are insufficient, of which, however, there can be but little doubt, more can be added, before we make use of the cross bred males. Six crosses can be obtained in twelve years, though we think heifers should not be permitted to breed, as a general rule, until three years old, which would extend the time to eighteen years. Breeding entirely from the produce of two year old heifers (for the purpose of advancing the crosses as rapidly as possible) would lead to a diminution of size.

Apart from the obviously superior economy of building up a breed of cattle for our country out of materials, a portion of which are within our possession, there are other important considerations which favor the proposition. The thorough bred short horn, though it will amply repay all the care and attention bestowed upon it, unquestionably requires greater care and attention than the ordinary farmer is willing to bestow on his cattle. It requires a more plentiful supply of feed than is to be found upon any but our best soils, when dried up by the excessive heats of summer. This its large size would lead us to expect. Engrafted on our native stock, with the size

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wards of 3 lbs. a day for that period! He yet retains his appetite, and continues to take on flesh as fast as ever, while the activity of his movements are but slightly impaired. Owned and fed by P. N. Rust, Esq. of Syracuse.

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slightly diminished, a hardy race, and requiring less food, would be obtained, and it would, during the course of breeding which produced it, become inured to the requirements of an American climate, and American systems of husbandry. The infusion of a new strain of blood would of itself add vigor and energy to a family, which, tracing their common descent to a few animals, and admitting no alien intermixture, must necessarily all be bred from affinities more or less remote. There can be but little doubt that a portion of the improved short horns of the day require another Colling cross. Mr. Berry was aware of this, and procured a Teeswater bull, "to which blood he was desirous," in his own language, "to go back, *on account of the extent to which in and in breeding had been carried.** Mr. Rotch, of this State, purchased a bull out of Mr. Berry's "Actonia," by the above named Teeswater bull with views similar to those expressed by Mr. Berry.† The American breeder is entitled, at least, to the privilege of a competition, for the attainment of so desirable a result.

There is yet another point. There can be but little doubt that by the union of the short horn, with our smaller, but vigorous and active race, a heavy and powerful variety of working cattle will be produced; and this, to the American farmer, will always be an important consideration. Those especially fed on upland and less nutricious pastures, whose labor ought to compensate for their tardier maturity; with size, feeding properties and docility, increased from that of the native ox, by the cross, will lose little, and probably nothing of the activity and hardihood of the common race. Mr. Colman, in his fourth report of the agriculture of Mass. p. 265, after speaking in the highest terms of Devon working cattle, says, "I am ready to admit, that I have seen some few yokes of oxen of mixed blood, of the improved Durham, as fine, in appearance, and in reputation as good animals for work as any that I have met with."

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* See Mr. Berry's statements in the "Farmer's Series," p. 237.

† This calf unfortunately died, previous to shipment, in England.

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THE BEST BREED OF CATTLE.

THE POINTS BY WHICH CATTLE SHOULD BE JUDGED.

East Bloomfield, Dec. 22, 1841.

To HENRY S. RANDALL,
Cor. Sec. of the New-York State Agricultural Society.

DEAR SIR—In your circular of the 14th inst., addressed to me, you requested information on the most profitable breed of cattle, for this section of the country.

I will undertake to answer the question according to my own opinion of the matter; and although writing is not my trade, I will try to make myself understood. If I can do that it will be all I expect to accomplish.

It is my opinion that the Durham breed of cattle is the best for our section of country, for common use, if properly selected from the best variety of that breed of cattle; and as there is a great variety of that breed, I will endeavor to particularise the variety which, in my opinion, may be the most useful. I wish in the first place to have it understood that I have never been personally acquainted with the Hereford breed. I have only seen a few of them once, and shall not, therefore, take them into the account at all.

In recommending the Durham breed, I do not mean to recommend every individual of that breed; and probably I may not recommend such as are at this time the most popular, but I must be dictated wholly by my own judgment.

I would not recommend for common use that variety of the breed which are very long in the body and limbs, with broad prominent hips, and not very closely ribbed; although such may, by extra keeping, be made very large and showy, and would be just the thing for a person who wished to make all he could of an animal, at whatever expense of keeping.

I believe animals of a medium size, of whatever breed they may be, are generally the best proportioned, and the most useful in this section of country, where they are reared for the treble purpose of working oxen, fattening, and for milk. Those that possess the requisite qualities for the two former purposes will undoubtedly be hardy and easily kept.

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The animals which I would select for common use should have bright, lively looking eyes, and be well cut up under the throat. I never was acquainted with an animal destitute of either of these qualities, that was quick and lively, and full of energy, but on the other hand they are invariably dull and sluggish.

I would like to have the neck set on so high as to be in a straight line with the back, which should likewise be straight and even with the top of the shoulders; which form conduces to the strength of an animal more than a hollow, or a rounding back, or any other shape whatever.

A broad, capacious chest is one of the qualities which is indispensable in the formation of an animal for usefulness—that the lungs may be large and have ample room to perform their office. It is supposed that "the power to prepare the greatest quantity of nourishment from a given quantity of food depends principally upon the magnitude of the lungs, to which the organs of digestion are subservient." An animal with a contracted chest can be of but little value, whatever its other qualities may be. The ribs should be well arched, which will conduce to the capaciousness of the chest, and give to the animal a round form, which is the best possible form for strength and activity; and it gives the intestines sufficient room, without compelling them to hang down so as to impede the progress of the animal. The ribs ought to approach near to the hips, for the same reason that an animal needs ribs at all.

I would not have the hips very prominent; cattle with prominent hips must be kept in high order to make them appear comfortably smooth, and I am not aware of any particular benefit to be derived from such hips over those that lie low and are more easily covered.

The legs should be straight, short and tapering. If they are straight and short they are stronger than long or crooked legs can possibly be; and they do not, if straight, interfere with each other when in motion. If they are tapering they are made so by a good covering of muscles on the upper part, near the body; and the strength and activity of the animal depend very much on the size of the muscles, they being strongly attached to the tendons, by contracting and expanding produce the whole moving power; and the larger they are the more powerful will be their ability to give the animal the desired motion.

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The covering next to the frame of the animal is of no small importance. It is composed principally of muscles; and when an animal's buttucks and thighs, and forearm have a good covering of it, it not only makes them appear strong, but it makes them really so. Such cattle are more strong and hardy than those which possess small muscles in these parts.

There is one more part to which a large muscle adds very much to the strength and beauty of an animal, and that is the back bone. A heavy coat of muscle extending from the hips to the shoulders, on each side of the back bone, makes the shape of the animal round, and adds to its strength and activity, more probably than it could by being placed in any other part of the body.

The skin and hair are the outside coverings, and a skin of tolerable good thickness, if it is soft and pliable, I prefer to that which is thin. It is a covering on which an animal very much depends to guard it against small injuries from insects, cold, &c.

The hair ought to be short and thick. It makes an animal appear much better than long and rough hair. I do not know that it has any affinity to the usefulness of the animal, but I do not recollect of ever being acquainted with an animal covered with long, rough hair that was a good working ox; and I believe, from observation, that long hair does not denote a hardy animal. But I cannot explain the reason to my own satisfaction, and therefore will not attempt to explain it to others.

I have been acquainted with a few animals of the Durham breed that had nearly or quite all the above points which I have mentioned as qualifying an animal for usefulness, and their milking qualities were very good, I think as good uniformly, as it respects quantity and quality, as any that I have ever been acquainted with.

Those which I have just mentioned were hardy, quick cattle to work, and were easily kept in good condition, and fattened remarkably quick, and were of a good size, but not quite as large as the largest variety of that breed, although they are very heavy according to their appearance; and I think I never was acquainted with any other breed that united so many good qualities; and it is for that reason that I recommend that breed of cattle in preference to any other.

Yours, respectfully,

HEMAN CHAPIN.

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CATTLE, SHEEP, ROOT CULTURE.

Canaan Centre, Dec. 15th, 1841.

SIR—In answer to yours of the 22d of October, I have to say in reference to your first inquiry, that I think the Devonshire cattle the most profitable for our section of the State. It is what may be termed a grain district, though cattle and sheep are raised to considerable extent, and should be to a much greater (in my judgment) in all grain growing countries. The profits arising from the sale and produce of stock are not the only source of income to the farmer; the improvement of his lands, by the manure made in his yards and left on his fields, being another important item, and without which he can hardly expect materially to improve their condition; besides, the profits arising from stock, as far as a farm will sustain it properly, are obtained with less labor and expense than from grain. By this I mean to be understood to say, that I think it far better to feed and mow our clover fields, and have the returns from our flocks and yards, than to plough under the clover to enrich them. For this reason, I think the Devons better adapted to our section of the State than larger breeds, as they have necessarily to be fed on a good proportion of coarse fodder through the winter, their size enabling them to sustain themselves on less and coarser food; besides, they are ahead of all others for beauty and activity, being far superior for working oxen for farmers, their color, size and sprightliness answering exactly their wants and taste. In a country where hay and grain are cheap, and beef and not labor is the object desired, the Durhams are unquestionably the best.

In answer to your second inquiry, I have to say, that I am fully satisfied that the Saxony sheep will eventually be found to be the most profitable for wool, notwithstanding they are at present almost wholly discarded, and most of the fine flocks are being ruined, as to the quality of their fleeces, by the use of heavy-fleeced Merino bucks, which will deteriorate their desirable qualities fifty per cent faster than the same degree of improvement can be made after the mistake is apparent. Nothing is more easy than to retrograde; but any considerable improvement requires time, care and skill. The raising of a choice flock is not the business of one year, and any hasty departure from well established principles, will require years of careful attention to recover what has been lost. Any person acquainted with the wool

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market, and the views of manufacturers on the subject of greasy merino wool, can not but know that they will not buy such an article at any fair price, and that it is only suitable for the coarser kinds of goods, and that the waste in cleansing depreciates its value very much. As far as my observation extends, the manufacturer of fine goods will not buy it, and it is seldom sold by the grower to the manufacturer for any purpose, but generally to speculators, who mix it with other lots less obnoxious to the purchaser. If, then, it will not suit the manufacturer, is there not a manifest impropriety in growing it, and will not time bring about a reaction, and will not the better article take the place of the poorer? The great objection to Saxony sheep is their light fleeces; bnt is there no remedy for that? I think there is, and that any flock may, in a few years, be made to produce from three to four pounds per head, without any material diminution in the quality. By selecting ewes whose legs and heads are well covered with wool, their form desirable and the staple of their wool long, and breeding from a buck well selected, that will shear six pounds, you will soon have a good proportion of ewes, that will produce from four to four and one-half, and even five pounds of wool per head; and from such ewes it is easy to raise a flock that the ewes and lambs will shear three and one-half or four pounds per head. Such sheep will disregard a cold winter, and four pounds of wool will sufficiently protect them from its cold blasts, be the breed what it may. This is not with me a matter of speculation, but of successful experiment; and I very much regret to see so many choice flocks degenerating into the coarse-thighed, greasy Merino family. As to the best manner of rearing sheep, much depends on a constant and careful attention to their wants at all seasons; good pasture in the warm months, when flies are troublesome; a selection of the poorer ones in September, in order to give them better feed; as much well cured hay as they will eat without leaving any for the old ones, with a few oats extra for the lambs in November and December, with good shelters for all, and water in their yards through the winter, is all that I find necessary to have them do well. Ticks should be exterminated, and may be with very little trouble, by dipping the lambs, for two or three years in succession, in tobacco juice one or two weeks after shearing.

In reference to the cultivation of roots; the easiest way to raise turnips is to plant them in ridges about two and a half feet apart, thereby saving much labor the first time hoeing, by having the plants

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above the weeds. Potatoes should be planted on the surface, the land marked with a horse sled or any other suitable implement that makes no furrow. The potatoes should be cut in pieces, with one eye in each, and three or four of those pieces are sufficient for a hill. From several experiments I have made, I am fully satisfied that farmers generally are in the habit of planting too much seed, and that four stalks in a hill will produce greater weight and a less number of potatoes than any number of stalks over four. From twenty hills, planted with one large potatoe in each, I had one hundred and forty-eight more potatoes in number, and four and one-half pounds less in weight, than from the same number of hills having but four eyes in each; their location and culture being in every other respect equal. This proves that a small potatoe is better than a large one for a hill, the number of eyes being less. Eight or nine bushels are sufficient to plant one acre, two feet and nine inches apart each way, which is far enough for cuttings, as the tops will not grow as large as from whole ones. I am aware that this is new doctrine, and with most farmers will need confirmation; and I only ask, that all who feel interested would give it a fair trial on a small scale for their own satisfaction. You will make what use you please of all or any part I have written.

Yours respectfully,

DANIEL S. CURTIS.

GEOLOGY AS CONNECTED WITH AGRICULTURE.

By Willis Gaylord, *of Onondaga.*

No one who is familliar with the history of agriculture, who remembers what its condition was fifty years since, and is acquainted with its present state, can hesitate in admitting the rapid advances made in the practice of cultivation, or deny that very much of this success is owing to the application of the sciences to the art of agriculture. Processes formerly considered difficult and mysterious are now familiar to all; effects have in many important instances been traced to their causes; and results have been obtained by carrying out in experiment the deductions of science, which have been of the greatest benefit to the farmer. Thus the application of botany to the aid of the cultivator by such men as DeCandolle, Macaine, Loudon, Lindley, and Liebig, has shown the necessity and advantages of rotation; the mode by which nature affects improvements in plants and fruits, and enables us to imitate, or in many cases to improve upon her; and in various other ways

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contributes to the comfort and the prosperity of the farmer. Chemistry, too, has rendered the most essential aid to the progress of skilfully conducted, and successful agriculture. By developing in a considerable degree the constituent of the most valuable plants, and teaching us the character of the soils we cultivate, it has enabled us to supply the ingredients that are wanting, or to correct any existing in the earth which are injurious. In the hands of Fourcroy, Davy, Chaptal, Faraday, Liebig and others, chemistry has been, and promises still more to be one of the most efficient aids of the farmer. It has taught the essential elements of plants; it has shown the most profitable and successful methods of preparing various new manures and composts; and more than all, it has given us glimpses of the great pervading agent in all growth, nutrition, vegetable and animal organization, and promises to admit us still farther into that mysterious temple, where in silence and darkness the germs of animal and vegetable life first find existence, and the means of its continuance. Geology, the most modern of the sciences, which has sprung into being, and assumed form and method within the memory of many now living, has not been backward in offering its contributions in aid of the tiller of the soil. Formerly the earth was looked upon as a mere mass of inert matter; capable of teaching nothing, and from which man had nothing to learn. That time is past! The earth is proved to be a volume full of the most important readings; a chronicle in which the events of illimitable ages are recorded; pages in which new proofs of wisdom and design are clearly manifest, and by which every observer is most eloquently invited to "look up through nature, up to nature's God." The crust of the earth, that part called its surface, and which is exposed to our notice, bears every where the most conclusive marks of change. Examination of it proves that changes requiring long periods of time for their completion; changes involving the extermination as well as the creation of numerous races of animals and plants; changes which have affected the nature of the earth in all succeeding times, and still exert the most powerful influence on the social condition of man, have followed each other, until the earth had become fit for man's residence and the six day's work of the Almighty was crowned by his creation. To the lover of nature, the dust upon which he treads, has assumed a new value in consequence of the discoveries of geology. He sees that it has once literally lived; that the flint of our mountains, the red clays of our sea shores, the vast deposits in many of our swamps and bogs, as well as the myriad coral isles of the blue Pacific, are

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but the remains of the puny tribes who have done so much to change, and render habitable the face of our globe. He recognizes the great truth that life is a series of combined existences from the simplest infusoria to man, in which the decay of the one, has formed the step for the superior and more perfect organization of the next. Geology has shown that each step in the series is distinct; that species of plants or animals never pass into each other; that successive acts of creative power were exerted as the earth became adapted for higher and more complicated organizations; and that consequently there was a time when each species of plant and animal had a beginning, and the termination as well as the beginning of many, is marked with a distinctness not to be mistaken. The doctrines of eternal succession, or the formation of later species by successive developments of the earlier, to which some philosophers have fondly clung, are proved by geology to be inadmissible. It has been the custom with many to underrate the importance of geological studies, as though they led to no practical results, notwithstanding Sir J. F. Herschel has said "that next to astronomy, there was no science the pursuit of which promised more utility, or led to more exalted views of God and nature." Geology in fact, does for time, what astronomy has done for space; it carries us where all our methods of computation are lost, and we are lost in the infinite. But it is not with the theoretical part of geology we have at present to do; our business is with the earth as it is, and our object is to point out the manner in which the changes that have passed over the earth's surface have rendered it not only fit for the residence of man, but under the direction of intelligence, of being vastly more productive than at present.

To understand the relation which geology bears to agriculture, and the way in which it can be made subservient to its promotion, it is necessary to glance at some of the revelations which the science has made in regard to the structure and present condition of our globe. In the classification of the several strata of rocks that compose the crust of the earth, different writers on the subject have adopted different names for the successive masses; but we shall adopt the one which is most generally used, though less scientific than some of the other proposed nomenclatures, as understood by all, and based on reasons derived from the strata themselves, and obvious to every observer. Rocks from the lowest known, to those of the latest formation, are obviously divided into the stratified and the unstratified; but for the advantages of science, and the convenience of reference, these have been subdivided

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into the PRIMARY, TRANSITION, SECONDARY, TERTIARY, DILUVIUM and ALLUVIUM; this enumeration beginning with the lowest or earliest rocks, and ending with the surface covering or soil. We much question, however, the necessity or propriety of separating the transition and secondary rocks, as there are many things common to both; and writers on geology are by no means agreed as to the point in the series where the separation should be made.

The primary rocks, still beginning in the lowest part of the series, are granite, gneiss, mica slate, primary limestone, talcose slate, hornblende slate, quartz rocks, and clay slate. By some, all these rocks above the granite are termed metamorphic rocks, as they all, in some places, exhibit traces of stratification, while in others they appear destitute of this structure; a difference supposed to be the result of partial fusion, great pressure, or both. The lowest, granite, has always the same constituents, (quartz, feldspar and mica,) is obviously crystalline in all its parts, and formed by the gradual cooling of a mass in a state of fusion. In these rocks, the result of chemical and mechanical agents alone are seen. Organic life appears not to have existed, at least no traces of organization are now remaining. It is from these rocks that all the other strata have been formed by decomposition and deposition, and consequently in their essential mineral characters must partake more or less of the parent rocks. The limestones of this group are usually crystalline, sometimes called saccharine, from their resemblance to coarse grained loaf sugar, and furnishing the most pure and beautiful marbles. That it has in many instances undergone fusion, is perfectly evident from its position and appearance in connection with other primary rocks, of which Prof. Emmons's Geological Report of St. Lawrence county in this State, exhibits some striking instances. A line drawn from Ogdensburgh south through the valley of the Black river, the Little Falls of the Mohawk, to the Delaware, where it touches the line of Pennsylvania, would divide this State into two great sections, the east of which would belong as a whole to the primary formation, while west of that line not a trace of that formation exists, except in the erratic blocks or boulders scattered over the surface.

Above the primary group appears the transition, and here we enter upon a series in which the remains of organic life, low indeed in the scale, but still life, becomes associated with the mineral or earthy constituents, of which the strata are composed. Those geological writers that separate the transition series from the secondary, usually draw the

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line between the transition limestones or the silurian system of rocks, and the old red sandstone; but Prof. Buckland says, "It is most convenient to include in the transition series, all kinds of stratified rocks, from the earliest slates in which we find traces of animal or vegetable remains, to the termination of the great coal formation:" and the Palæontological chart prefixed to Prof. Hitchcock's Elementary Geology, shows that in many respects the whole of the transition and secondary series might, with propriety, be classed together. The principal difference will be found in the fact, that the animal remains in the earlier rocks of the transition, though nearly allied in genera, will be found of different species in the more recent portions of that and the secondary groups. To the vegetation, rank and luxuriant of this period of time, are we indebted for the immense beds of coal which are now contributing so much to the comfort and prosperity of man; and in these beds, and their associated rocks, we trace the characters that marked their species, and their peculiarities. The plants, trees, &c., were such as are now tropical, and their magnitude, foliage, and numbers, demonstrate that the conditions of their growth in respect to heat, moisture, soil, &c, were of the most favorable, or rather forcing kind. In this earliest state of animal existence, we find the *Vertebrata*, *Mollusca*, *Articulata* and *Radiata*, though all are of the simplest forms; for instance of the first only fishes; of the second, many genera or families, such as the Orthoceratic, Producta, Nautilus, Terebratulæ, and others, some of which are extinct, while others have continued through all the formations; of the third, the Trilobites, a family now extinct; and of the fourth, there are abundant traces, of which the Crinoidea or lily shaped animals, afford specimens of great beauty. If we include in a single series both the transition and secondary, the rocks in the ascending order will be the cambrian or graywacke system, or older fossiliferous rocks; the silurian system, or graywacke slate and transition limestones; old red sandstone; carboniferous limestones; coal formation; new red sandstone; lias; oolitic system; green sand, and chalk. According to this classification, that part of this State, west of the line described above, would embrace all the rocks from the upper limits of the primary, to the lower series of the great coal formation, this series not being fairly reached until the State of Pennsylvania is entered.

Next succeeding the transition and secondary rocks, is the tertiary formation, in which the strata have been alternately deposited by bodies of salt and fresh water, as is proved by their organic remains. What are termed the marine strata, have their fossiliferous remains exclu-

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sively such as are found in the sea, and the fresh water strata show remains peculiar to fresh water. Indeed, in both cases, the fossil animals are such as are now found in the seas and lakes of the globe, in far the greatest number of instances, thus proving that the changes which have caused these formations, are comparatively recent, and bringing both the animal and vegetable remains nearer to our own times and existing species, than in the strata that have preceded them. The tertiary series has excited a very great influence on the surface, in fitting it for the residence and support of man.

Nearly all that part of the middle or southern States, lying between the first ranges of hills and the sea coast, belongs to the tertiary. It embraces the rich marls and green sands, which, in New-Jersey and other places, have proved such efficient fertilizers of the soil. This green sand is found in various countries, and as some doubts have been entertained as to the principle most active in its aid to vegetation, we copy from Prof. Hitchcock's Elementary Geology the analysis of specimens from different countries.

	French green sand, by M. Berthier.	English sand, by Prof. Turner.	Massachusetts sand, Dr. S. L. Dana.	New-Jersey sand, by Prof. H. D. Rogers.
Silica,	50.0	48.5	56.700	49.27
Protoxide of Iron,	21.0	22.0	20.100	24.67
Alumina,	7,0	17.0	13.320	7.71
Water,	11.0	7.0	7.000	5.91
Potassa,	10.9	traces	....	9.99
Lime,	....	....	1.624	5.08
Magnesia,	....	3.8	1.176	....
Manganese,	....	traces, loss	0.080	....

Potassa has been claimed as the sole fertilizing ingredient in this tertiary deposit; but, if such is the case, the sand of England and Massachusetts should be worthless. It is probable the oxide of iron, lime, and alumina assist the action, and are beneficial without the alkali, although that would seem to be the most powerful agent in the deposit. "Throughout all this period," says Dr. Buckland, there seems to have been a continually increasing provision for the diffusion of animal life, and we have certain evidence of the character and numbers of the creatures that were permitted to enjoy it, in the multitude of shells and bones preserved in the strata of the tertiary formation.

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The formation which succeeds the tertiary, is called diluvium, a word which implies that it has resulted from a deluge or deluges, but there are no good evidence that such is the fact. This deposit has received various names such as *diluviun, erratic rock, group, boulder formation*, and more lately, *drift*, which latter term expresses it character, as it generally exists, better than any other. Of this great mass, which covers most of the surface of the habitable globe, Prof. Hitchcock remarks, "That it is composed of sand and gravel, of different degrees of comminution, mixed together in just the manner that violent currents of water would do it. This gravel is not often derived from the rocks beneath it, but from those at the distance of several miles, and in this country, usually from ledges which lie in a northwesterly direction. The surface of this gravel is often scooped out into deep basin-shaped depressions, and raised into corresponding elevations, the difference of level being from 20 or 30, to 100 or 200 feet." Where the decomposed rocks which have formed diluvium, belong to the clay, slates or shales, so much clay will be mixed with the mass of coarse gravel and sand, as to render it very compact and hard. Of this nature is the *crag* of the English geologists, and the *hard pan* of our farmers; the character of which, it will be seen at once, must be determined by the nature of the strata from which the mass is derived, and the proportion the several constituents bear to each other. In examining deposits of diluvium, the coarse pebbles and gravel will usually be found at the bottom, then clay, and at the surface, sand. If the clay is absent in drift to any considerable extent, the mass will of consequence be very porous and dry; if clay is in too great abundance, it is retentive of water, and as a natural result, wet.

There is still another group, or stratified deposits, which is the result of causes now in action, and which materially modifies the surface of the earth; this is called alluvium. Modern geologists place the following among alluvial deposits, or classify them as belonging to this group. Soil, sand, peat, marl, tufa or travertin, coral reefs, siliceous sinter, siliceous marl, or the skeletons of infusoria, bitumen, sulphate of lime, hydrate of iron, hydrate of manganese, chloride of sodium, geic compounds, sandstones, conglomerates, &c. From this enumeration it will be seen that alluvium in some form, acts a most important part, and should be well understood by those who would determine the condition, geological character, and quality of soils. Alluvium is most frequently understood to mean only those depositions made by rivers, of rich fri-

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able earth; such as the banks of the Lower Mississippi, Po, Nile and Ganges, or in a more limited degree, by most small rivers on which what are called interval lands are found. It will be seen, that used as a geological term, its meaning is much more comprehensive.

As all soils are made from the disintegration and decomposition of the rocks into earth, and then united with decayed organic matter either animal or vegetable, a knowledge of the primitive materials from which the several stratified series of rocks are formed, will much assist in determining the character of the soils above them, or originating from them. Chemists have detected some fifty-three or four simple substances in the earth, or substances as yet incapable of further division, but there are of these only sixteen that are of any considerable account in the formation of the crust of the globe; and nearly all of these enter into the combinations in which they exist, not in their simple state, but as binary compounds. The following will show the names of the sixteen simple substances that we have said constitute the greater part of the globe.

1. *Metalloids or the bases of the Earths and Alkalies.*

1. Silicium.
2. Aluminium.
3. Potassium.
4. Sodium.
5. Magnesium.
6. Calcium.

2. *Metals Proper.*

1. Iron.
2. Manganese.

3. *Non-metallic Substances.*

1. Oxygen.
2. Hydrogen.
3. Nitrogen.
4. Carbon.
5. Sulphur.
6. Chlorine.
7. Fluorine.
8. Phosphorus.

The following are the binary compounds that constitute nearly all the accessible parts of the globe:

1. Silica.
2. Alumina.
3. Lime.
4. Magnesia.
5. Potassa.
6. Soda.
7. Oxide of Iron.
8. Oxide of Manganese.
9. Water.
10. Carbonic acid.*

* Those who wish to investigate this subject further, are referred to the Geological works of Lyell, Hitchcock and Bakewell.

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These compounds are termed binary, because they are composed of two of the simple substances; indeed it requires the utmost skill of the chemist to exhibit the base of these compounds in the separate state. This silica is composed of 52 parts of *silicium*, and 48 of oxygen; alumina of 53 parts *aluminium*, and 47 of oxygen; and the other compounds in a similar manner. Thus it will be seen that oxygen constitutes nearly one-half of the ponderable matter of the globe. It has also been estimated that its crust contains 45 per cent of silica; 10 per cent of alumina; 15 per cent of carbonate of lime; 3 per cent of oxide of iron; some of the unstratified rocks, such as felspar, contain from 10 to 14 per cent of potassa, and the stratified rocks contain it in considerable quantities; while some basalts contain 6 per cent of soda, and this compound enters extensively into the composition of the ocean. The other compounds are diffused more or less extensively, and though in small proportions, contribute essentially to the quantities of the earths, and their formation into soils.

In the following table No. 1, is shown the proportion of the metallic base to the oxygen in some of the most important rocks; and in table No. 2, the amount of silica and alumina in the predominant rocks of the primitive class; 100 parts of rock in each case being employed.*

No. 1.

	Base.	Oxygen.
Granite,	52	48
Basalt,	57	43
Gneiss,	52	47
Clay slate,	54	46
Sandstone,	49 to 53	47 to 51
Limestone,	52	48

* For the groundwork of these tables see Phillips and De la Beches' works on Geology, and Hitchcock's excellent Elementary volume on the same subject.

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No. 2.

	Silica.	Alumina.
Granite,	60.40	12.34
Greenstone,	54.86	16.56
Basalt,	52.00	14.12
Compact felspar,	55.50	21.00
Gneiss,	70.96	15.20
Mica slate,	67.50	14.26
Hornblende Rock,	54.86	15.56
Talcose slats,	78.15	13.20

These tables will show in what manner, and from what sources the soil derives the respective proportions of its principal earthly ingredients; and where soils can, as they may in very many instances, be traced to the rocks forming them, the peculiar characters and qualities belonging to it may be determined with much certainty. Eight or nine simple minerals only, constitute the great mass of all rocks. Quartz, felspar, mica, hornblende, carbonate of lime, talc, augite, and serpentine. Other minerals sometimes exist, as gypsum, common salt, coal, bitumen, pyrites, oxide of iron, &c. &c. which though found in small quantities, are not without their effect in modifying soils, so as to materially affect their productiveness.

It will be found that far the greater part of the population of the globe inhabit those parts covered with the transition, secondary, and tertiary formations, or matter on the soil that has been produced from the disintegration and decomposition of these rocks. In the language of Professor Buckland, "The process is obvious, whereby even solid rocks are converted into soil fit for the maintenance of vegetation, by simple exposure to atmospheric agency; the disintegration produced by the vicissitudes of heat and cold, moisture and dryness, reduces the surface of almost any strata to a comminuted state of soil, or mould, the fertility of which is usually in proportion to the compound nature of its ingredients." But whatever may be the character of the rock, examination shows that when sufficiently disintegrated, and combined with the proper quantity of decayed animal or vegetable matter, fertility to some extent will be induced.

Sand, clay and lime, are the three principal ingredients of all soils, and on the proper proportions, and intermixture of these, the qualities of all cultivated lands may be said to be depending. Either of them

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alone, and in a state of purity, is comparatively barren; but when the mixture is effected as by the addition of clay to sand, fertility is ensured. The more thoroughly this comminution and intermixture has taken place, the better will be the soil produced, as from the proportion in the primitive rocks of the globe, which the three principal earths bear to each other, it is clear a full mixture of those derived from them will give most usually the proportions necessary for productiveness. It is one of the most beautiful illustrations of design in the order of nature, that while the granitic or primitive rocks on their first disintegration are less favorable to cultivation and production than those from later formations, they are for the most part confined to mountains or mountain districts; while the lower, level, more temperate, and easily cultivated regions are composed of the disintegrated masses constituting diluvium and alluvium. There is no conceivable way in which the thorough mixture of the earths, so requisite to fertility, could have been accomplished so effectually as by the breaking up, and grinding down, which is the result of repeated disintegrations and depositions. On these previous processes of nature, the whole tillage of the soil is suspended; and without them there could have been no agriculture.

The masses of fossiliferous rocks, embracing the whole series from the lower transition to the upper tertiary, have had their thickness variously estimated by geologists. The principal sources of difference lie in the lower transition, while all above present a remarkable uniformity. Prof. Phillips's estimate of the thickness of these fossiliferous rocks, is the lowest, being about 34,000 feet or more than six miles; while the greatest is that of Dr. Smith, which is 142,800 feet or not far from 27 miles. In these, we trace the progress of organized life, from the simplest and half vitalized polypi and coldblooded animals, and the marine plants or fucoids, up by regular or scarcely interrupted gradations, and the successive developments of higher and more complicated organizations, till the earth had been fitted for the abode of man; and the last and crowning act of creative energy placed him upon it, as master of the whole. From the depths of these series of rocks, entombed for countless ages, we draw forth remains which the skill of a Cuvier has placed bone to bone, and exhibited forms so dissimilar to those now existing on the earth, that nothing save their veritable skeletons before us, would induce a belief in the possibility of such organization. "The peculiar feature in the population of the whole series of secondary strata," says Prof. Buckland, "was the prevalence of

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numerous, and gigantic forms of saurian reptiles. Many of these were exclusively marine, others amphibious: others were terrestrial, ranging in savannas and jungles, clothed with a tropical vegetatiou, or basking on the margin of estuaries, lakes and rivers. Even the air was tenanted by flying lizards, under the dragon form of Pterodactyles. The earth was at that time, it is probable, too, much covered with water, and those portions of land which had emerged above the surface, were too frequently agitated by earthquakes, inundations, and atmospheric irregularities, to be extensively occupied by any higher order of quadrupeds than reptiles." These perished plants have produced those beds of coal, which we are now using; and these uncouth reptiles have elaborated many of those substances, which in the soils formed from the decomposition of their enclosing strata, constitute no trifling element in their fertility.

Of the thickness of the unstratified rocks, we of course have no possible means of deciding. That it is very great, there can be doubt; and this is proved by the examination in many places of the masses of primary rock, and their inclination to the horizon. Thus, Professor Pallas, notices in the peninsula of Tauris, an unbroken series of primary strata, which, after making allowance for their inclination, would give a perpendicular thickness of more than 68 miles; and according to Prof. Hitchcock, the railroad from Boston to Albany, in passing from Westfield to Pittsfield, is carried over strata of primary rocks, nearly perpendicular, for at least 20 miles. If, as is now generally supposed, the interior of the globe is in a state of fusion, or semifusion, it is probable this crystallized crust extends from the surface to the point of fusion; and although, in penetrating the earth, the increase of temperature is such as to justify the opinion that an intense heat must exist in the interior of our planet, the different action of heat when under great pressure, and when free, does not enable us to decide positively the present thickness of the earth's crust. Reasoning from different data, or different series of experiments, philosophers have variously estimated the thickness of this crystallized mass, from 150 to 250 miles in thickness.

The processes by which soils are formed, suitable for the purposes of agriculture, would appear something like the following. All the earths must have been derived from the disintegration and decomposition of the primary or crystallized rocks. They could have had no other origin. Deposited in the waters of the earliest seas, the abode

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of the first created animals and plants, the successive layers and strata of the lower transition, or fossilliferous rocks were deposited. That there should have been a state of great quietude existing in the elements at this period, is evident from the perfect state or condition of the organized remains of this series, proving that they lived and died without experiencing those great convulsions which mark a later period of deposite. The regularity of the strata is further evidence of this fact. When these strata were, by some convulsions of the earth, lifted from the seas in which they were deposited, a new series of disintegration commenced, of which the transition, rather than the primary, were the subjects. Now the secondary and the carboniferous strata were deposited, and that too, it would seem in great degree under the same conditions of quiet waters as in the former case. Succeeding revolutions broke up the new formed rocks, and exposed both them, and the older ones, to fresh disintegration and deposition. In this way, the tertiary and upper rocks were produced, abounding in proofs of organic life; but frequently in such conditions as to show that the changes to which the earth was subject, were sudden and violent. The action of currents, glacial action, and the influence of atmospheric causes now appear, in the masses of drift, diluvial matter, boulders, &c. which cover the whole surface of the earth, with few exceptions; and exhibit the most abundant evidence, that organization in plants and animals, had reachad a point rendering the globe a fit residence for man, and on which we now find him, the last created, and most largely endowed resident.

That the earths which constitute the basis of soils, and form the groundwork of agriculture, were derived from the original primary rocks, is so apparent that no one seriously thinks of controverting the fact. The repeated changes and disintegration, large masses of them have been subjected to since that time, have so mingled the original constituents, as to destroy in a great degree, their original character, while at the same time they are much better fitted for the purposes of the agriculturalist, than they could otherwise have been. There is one great error, however, into which geological writers have frequently fallen; and that is, while the formation of soils is admitted to be owing to the disintegration of rocks, they are supposed invariably to resemble the strata lying immediately under them. In some few instances, this may possibly be the case, but they are so rare, and produce so little influence on the agricultural character of a country, that they are hardly

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worth taking into account. On the contrary, the course of the currents, or the action of those causes that have produced and deposited the drift or diluvial covering of the globe, must be taken into consideration, if correct results would be arrived at; since on these the fitness or unfitness of a soil for culture is mainly depending.

The direction of that action which has produced the drift on this continent, and fashioned its surface, whether we suppose it to have been diluvial currents, or the movements of glaciers, is so clear, that no room for doubt is remaining. Pebbles, boulders, or masses of rock, since the geological structure of the country has been investigated, can be readily traced to their original beds, no matter where found, and the course in which they have moved since their first breaking up, is also the course of the action to which their removal is owing. Throughout the whole American continent from Nova Scotia to the Rocky Mountains, this action has been from the north to the south, with occasional slight deflections owing to local causes. This is proved by the boulders, which not only are found invariably to the south of the places from which they were derived, but are larger and more numerous near their original location, than farther from it. Thus, the whole of the vast transition formation which reaches from the Little-falls of the Mohawk in this State to the Rocky Mountains, embracing the valley of the great lakes of the St. Lawrence, and the upper valley of the Mississippi and its tributary branches is covered with boulders from the primitive rocks to the north of the territory named. Thus, Mr. Catlin found at the famed Red Pipe stone quarry, beyond the Mississippi river, granite rocks of 25 feet in diameter, that must have drifted several hundred miles from the north; and boulders are seen on the banks of the Ohio, derived from the primitive ranges north of the lakes, and which, therefore, must have traversed at least 500 miles. The same facts, according to Lyell, Greenough, and De la Beche, occur on the continent of Europe, proving the existence of a similar action, whatever that might have been. It is to this action, that the polished and grooved rocks of such large sections of our country are owing, showing existing forces sufficient to round or grind down the hardest masses. This action has excavated the beds of the great lakes, as well as the parallel valleys and smaller lakes of Western New-York, and spread the diluvial matter, so formed, over districts farther south. This will be evident to all who have examined the country with a view to its agricultural character as depending on its formation. In crossing the

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State from north to south, a variety of rock formations are passed, or rather ascended, sandstones, limestones, shales, &c. in various alterations, yet not a particle of these are found north of the beds where they originated, but the drift is invariably to the south. This fact, has had a vast influence on the agricultural character and capability of the west, materially determining the nature of the soil, and its productions.

The intimate intermixture which the changes before spoken of have produced on the quality of soils, is one great cause of the power of producing vegetation which exists in most masses of earth to a considerable distance below the surface. At the period of the formation of drift, plants and animals had long existed on the earth, and the effects of their deposition and decomposition has pervaded the whole mass. Soils made from the sedimentary rocks, are with few exceptions more fruitful than those from the primary ones. There is not, however, in all cases the same fertility, or power of producing vegetation, in the earths. In some cases it exists only on the surface or very near it; in others, earth thrown from a depth of ten or twenty feet will be as productive as surface earth. If the upper deposites are porous, it is uniformly found that the elements of fertility will be deep, thus showing that the ingredients that render the soil fertile, such as humus or vegetable manures, or salts, are carried downwards through the diluvium by infiltration. This will account in part for the different effects which earths taken at the same depths below the surface, as in digging wells, ditches, &c. in different places will produce. In some places the character of the deposite is such that the fertilizing matter produced in a succession of ages, has made no impression, but either remains on the surface in the shape of muck, or has been carried off by the action of the elements; *dense pan* is of this description. If thrown upon the surface of cultivated lands it remains unfertile for a year or two, until by the action of the elements, by aëration and disintegration, the unfavorable qualities are mitigated or changed. In other places the earth thrown out and spread on the surface, possesses so largely the essential elements of fertility, that it serves as a top dressing of manure, and adds largely to the crops grown. The western States are examples of this depth of fertile soil, and instances elsewhere may be adduced. Where such soils lie on a limestone basis, the common impression is that the depth, whatever it may be, is owing to the disintegration of the lime rock. This is erroneous, as such soils in many cases do not contain more

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lime than others, and the fertility to such depths is owing to their mechanical composition, their dryness, and consequent warmth. Some very compact clays are found to serve well as a top dressing on soils, but their efficiency will, in nearly every case, be found on examination to be depending on the lime they contain, thus making them a marl. Where this is not the case, if spread over porous sands the effect is excellent. The fine farm formerly owned by Judge Buel, near Albany, is an example of this, and shows that where the mechanical mixture of the earth is not of the proper kind for fertility it may be corrected, and the mass rendered productive in the highest degree. The sand plains between Albany and Schenectady are geologically constituted on the surface, of light drifting sands to the depth of thirty to fifty feet; this rests on clay from seventy to one hundred and twenty feet in thickness; and this on the common rock of the region. To correct the sandy character of the soil, which had hitherto been deemed almost hopeless, Judge Buel transported from the clay hills of Albany a quantity of that material (which in addition to the clay is rich in lime) as a dressing for his sands, and thus secured the tenacity requisite for the retention of moisture, and the proper action of manures. It may be remarked here as a geological fact of much interest to the farmer, that where the surface is a sand, the underlying strata is a clay, such as when mixed with the upper strata or soil, will make an excellent one for tillage and cropping.

That the soils now existing could not have been formed from the rocks immediately below them, is evident from the fact that a large portion of the transition rocks of this State have their upper surface now smooth and polished, exhibiting no marks of decomposition, but only of abrasion. This is not the case with the limestone and harder rocks only, such as those of Rochester and Lockport, but large tracts of the Marcellus shales, one of the softest and most easily decomposed rocks in the series, presents a similar appearance. We have seen this highly smoothed and grooved or striated surface on the high hills in the south part of Onondaga county, eight or nine hundred feet above the level of the Erie canal, and polished boulders of the same rock are frequently seen in or on the drift to the south of their original position. This movement of the diluvium or drift to the south, explains the cause why clay soil is sometimes found on sandstone rocks, sandy soils on the limestone strata, or a strong limestone soil on the shales. It also explains the reason why the character of soils in the same neighborhood or town should sometimes differ so widely, these things depending on

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the action of the currents, their freedom or obstruction. Thus, for instance, we know a town lying above, or to the south of the great range of mountain or crinoidal limestone that traverses the State from east to west, or from the Helderberg to Buffalo. The western half of the northern front of that town shows a gradual descent to the limestone strata, interposing no obstacle to currents or the transportation of drift; while a deep valley of some two miles in width, and showing a south boundary of some six hundred feet elevation, cuts off the eastern half of the town from the same strata. The result is as well marked in the character of the soil, and its adaption to particular crops, as in the timber and natural growth of the two sections. The west half, or that which presented no obstacle to the transportation of drift, was covered with oak and chesnut. On the shale rock, which forms the substratum of the whole town, limestone boulders are so plentiful that they are collected and burned for lime; the soil is a fertile loam, shallow, but producing large crops of excellent wheat; in short, it exhibits all those characteristics which mark the soils lying immediately south of the limestone series of rocks in other parts of the district. The east half of the town, on the contrary, that part where the diluvial action was obstructed by the deep valley alluded to, though of the same elevation as the other, has a widely different constituted soil from the west. The timber is beech and maple, the subsoil a dense clay hardpan, no limestones or but very few are found, the surface soil is a muck instead of loam, and the culture of wheat is much less profitable or certain than on the western half. It is excellent for grass or for spring grain, but the quantity of clay in soil produces the same effect that it does on lands still farther removed from the effect of the limestone series, and renders wheat very liable to be frozen out during the winter. The drift which should have been spread over the east part of that town, is now lying piled in large masses covering hundreds of acres, and from one to two hundred feet in height, in the valley below, evidently deposited by the eddies, or deflexions of the currents, which the mountain front of the town to the north of this place caused. Nor is this a solitary instance of the influence which opposing obstacles have had in the distribution of drift, and thereby determining in no inconsiderable degree the agricultural nature of soils.

It is to the proper mixture of a few of the earths already named, and the combination with those of *humus*, or decomposed animal and vegetable matter, that fertility is owing. A variety of experiments have

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been made by different men, to form artificial soils, or by differently compounding the earths, ascertain that mixture the best suited to vegetation. The experiments of Tillet resulted as follows: the most fertile mixture he could produce, was composed of three-eights clay, three-eights finely pulverized limestone, and two-eights of sand. These reduced to their elements gave of coarse sand 25 parts, silica 21 parts, alumina 16.5 parts, carbonate of lime 37.5 parts. The quantity and kind of vegetable matter incorporated is not stated. It is certain that the most careful examination of arable soils does not give any thing like the quantity of carbonate of lime used by Tillet; and it is therefore right to infer that the proportion of lime was far greater than is necessary, when combined as we find it in the soil, to promote the highest fertility. A knowledge of the constituent parts of soils will show how they are geologically as well as practically combined to be suitable for cultivation; for if, owing to geological position, any single ingredient is in too great proportion, such soil will fail in some essential respects. We shall therefore present an analysis of soils from different parts of the world, to show that the necessary and general elements of fertility are every where the same.

An analysis by Chaptal, of some fertile alluvion on the Loire, gave in 100 parts:

Siliceous gravel,	32
Silica,	10
Calcareous gravel,	11
Carbonate of lime,	19
Alumina,	21
Vegetable matter,	7

Davy, in his Agricultural Chemistry, page 162, gives an analysis of a fine wheat soil, Middlesex, England;

Carbonate of lime,	28
Silica,	32
Alumina,	29
Animal or vegetable matter,	11

The following is the analysis of a soil on the farm of E. Phinney, Esq. Massachusetts, cultivated for more than 100 years, made by Dr. Jackson. By comparing that soil with others on the same farm in a native state, it contains more soluble humus, and has consequently been

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improved by culture, a state which should always be the result of farming or tilling a soil.

Vegetable matter,	8.9
Insoluble silicates,	81.2
Peroxide of iron,	4.3
Alumina,	4.0
Phosphate of lime,	1.0

A specimen of the rich alluvion of the Nile was analyzed by B. Silliman, Jr. and gave the following result:

Vegetable matter,	6.90
Silex,	47.39
Alumina,	32.10
Peroxide of iron,	11.20
Phosphate and crenate of lime,	2.02

Dr. Jackson analyzed a specimen from the bank of the Mississippi, 100 miles above New-Orleans, and obtained these results:

Water absorption,	3.9
Vegetable matter,	3.6
Per-oxide of iron and alumina,	7.0
Carb. phos. and crenate of lime,	2.8
Insoluble silicates,	81.4

The same gentleman also analyzed a very rich soil from Batavia, in the East Indies. The vegetable matter in this, makes it resemble the muck soils of some parts of the west.

Water of absorption,	7.8
Vegetable matter,	24.9
Per-oxide of iron,	7.9
Alumina,	14.8
Phosphate and crenate of lime,	2.0
Magnesia,	0.3
Insoluble silicates,	43.0

A specimen of the best river alluvion from the Hudson, near Troy, analyzed by Prof. Eaton, gave the following:

Silex, (including small stones and pebbles,)	75
Alumina,	7

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Carbonate of lime,	3
Animal and veg. matter,	11
Soluble salts,	1
Water of absorption,	3

The following is an analysis by Prof. Hitchcock of 5 specimens of soils from the western States. Under the heads of soluble and insoluble geine, will be found the animal and vegetable matter of these soils.

	Soluble geine.	Insoluble geine.	Sulphate of lime.	Phosphate of Lime.	Carbonate of lime.	Silica.	Water of absorption.
Rushville, Ill.	7.4	2.5	3.4	0.6	1.5	84.6	6.3
Sangamon, do	4.9	5.6	1.2	0.4	1.3	86.6	6.3
Lazelle, do	7.6	13.8	1.4	0.4	3.3	73.5	9.5
Peoria, do	3.1	4.8	3.5	1.0	....	87.6	5.7
Sciota Valley, Ohio,	4.5	6.7	2.1	0.9	2.8	83.0	5.3

The soil from Lazelle had never been cropped, while that from the Sciota had produced corn 14 years successively, without manure.

The following analysis was made by Dr. Lapham, civil engineer of the soil, from a part of his father's farm, on a branch of Mad river, Ohio, which by constant cropping, without regard to rotation, had been so reduced as to be unfit for wheat.

Water of absorption,	6
Organic matter,	3
Silicious matter,	80
Alumina,	8
Per oxide of iron,	3

An examination of these several analysis will show that silica, lime and sand are present, as the principal earths in all soils; that the fertility is greatly depending on the amount of vegetable matter; and that where either of the earths is in excess, or wanting comparativeness, barrenness is the result. Chaptal found that when the clay in a soil exceeded 50 per cent, it was unfit for cultivation, and that all over 20

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per cent might be considered rather injurious than otherwise. On the contrary, most fertile soils contain from 60 to 80 per cent of silica, unless in cases where it is replaced by calcareous gravel. Some soils which had been abandoned on account of the amount of sand they contained, have been rendered fertile by placing on them small quantities of clay; proving that where other circumstances are favorable, a small amount of clay will give the required tenacity, prevent the too rapid descent of manures, and secure the proper supply of moisture. Soils that contain too much alumina are very heavy and retentive, and are apt to be wet and cold. Where there is a large supply of lime gravel, as in the soil analyzed by Davy, a larger per cent of clay is admissible, and frequently proves one of the best in the world for wheat, as is proved by the analysis, and crops, of some of our best wheat districts. The absence of either of these essential earths will prevent fertility, as the want of lime in that of Mr. Lapham prevented the growth of wheat; a result to have been expected from the analysis of other non-wheat producing soils.

If soils were uniformly produced by the disintegration of the subsoil strata, those on limestone would be the richest in that element of fertility. Such, however, is not the case; and strange as it may seem, there are some soils lying on limestone rocks which do not contain the least appreciable quality of that article. This may easily be accounted for by the fact that in the transportation of diluvium we have described, that which now rests on the limestone, came from strata that contained little or no lime. Sand is so much more generally diffused in all rocks than in the other earths, that it is scarcely possible to find a soil where it is not present, and some of the most fertile districts are those where the sand had been cemented by lime, making, when broken up, calcareous sand.

The State of New-York furnishes examples of all kinds of soils; those produced from every variety of formation, and of almost every shade of intermixture. The lower counties on the Hudson river, and the territory between Lake Champlain and the Black river, now mostly a wilderness, are examples of primitive formations to a great extent. The soil of the river counties, although formed in a great measure of granite, gravel and sand, has been so incorporated with the drift from the transition series, that the mixture makes one of the most fertile soils, when properly manured and cultivated. Morton, in his excellent work on soils, remarks that those kinds of granite rocks which contain

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large quantities of felspar, are from the potash they contain, liable to decomposition when exposed to atmospheric agencies; and when mixed with the quartz of the granite, the clay of the felspar, and well manured with calcareous matter, sea shells, lime, &c. form soils most productive of wheat and barley.

Prof. Hitchcock, in his Economical Geology of Massachusetts, says, that "the compact felspar that forms the basis of porphyry, frequently contains an unusually large proportion of alumina, frequently from 15 to 30 per cent. And although this is the hardest of the rocks around Boston, in many places it decomposes rapidly, and the resulting soil admits of high cultivation, as at Medford and Lynn." The condition of our primitive districts proves in a great degree the correctness of these opinions. The agricultural settlements bordering on the great granitic formation north of Montgomery and Saratoga counties, and west of Champlain, have proved that their soils, evidently the result of the decomposition of granitic or felspathic rocks, require nothing but the liming and manuring spoken of by Morton, to render them most fertile; and the high state of cultivation in some of the river counties is proof of what such soils are capable in the hands of the skilful farmer. Soils of this class in all countries have been found very durable, a fact which Liebig explains from the abundance of potash contained in the felspar, and which is given out by gradual decomposition. Soils from the gneiss rocks, are usually of an inferior quality to the granitic ones, from the felspar being frequently in a less proportion, and consequently the clay and potash of that mineral being wanting. Where the gneiss contains abundance of felspar, the soil has no perceptible difference from the best granite ones, and when treated in the same manner will be equally productive. Some of the best root soils in the world are from this rock, for instance the celebrated carrot and parsnip soils of Guernsey and Alderney; where the latter root is produced in greater perfection than any where else.

The great transition formation of western New-York furnishes examples of all the soils which such rocks can produce, from the coarsest pebbles to the most compact clay; soils in which comminuted limestone forms a large proportion, and that which is destitute of this element; soils varying from the lightest sands to the heaviest clays. On these the agriculturist finds soils adapted to every product, and capable of every modification and course of culture. There can be no question but that a natural difference exists in the soils of this formation, and the line is very distinctly marked in many respects by the water shed that

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separates the streams of the lakes from those of the Susquehannah and Ohio. It will be found that the soils on the northern or lake slope, are much better adapted to the production of corn, wheat, clover, &c. than those on the southern one, or rather on that part watered by the streams that flow southwardly; and there can be no doubt that this difference is caused by the geological structure of the two sections. On the northern slope, in the course of thirty miles, no less than three distinct deposits of lime rock are found, two of them of great thickness, besides several minor deposits. Indeed the whole mass, sandstones and shales, contain so much lime as to effervesce freely with acids. The first of these is the deposit which forms the falls of Niagara, in which the quarries of Lockport are found, which causes the falls of the Genesee at Rochester, and crosses in its course eastward the Oswego river at Fulton. The second deposit is the one which may be traced from Black Rock through the counties of Genesee, Livinsgton, Ontario, Seneca, Cayuga, Onondaga, Madison, &c. This mass is of great thickness, and has produced the greatest effects on the agricultural character of the soils in these counties. The Oriskany sandstone strata, which lies between this deposit and the gypseous ones is made of coarse sand cemented by lime, and when mixed with the marly or gypseous clays from the shales lower in the series, or to the north, gives an excellent soil, wherever its influence is felt from Oneida to Ontario. The upper deposit of limestone is the one called the Tully limestone, and is of limited extent and thickness, compared with the others. This deposit extends from the vicinity of Cazenovia westward across the counties of Onondaga, Cayuga, and part of Tompkins and Seneca. The mass called by the State Geologists, Marcellus shales, some seven or eight hundred feet in thickness, lies between the Tully limestone and the Onondaga or crinoidal limestones. From the Tully limestone deposit there is not another till the carboniferous deposits of Pennsylvania are reached, leaving a district of some forty miles in width destitute of this rock. The rock strata of this transition district of New-York furnishes in the red shale that lies between the gypseous formation and the Rochester series of lime rock, and in which the lead of the Onondaga and Oneida lakes are mostly excavated, a curious instance of the manner in which a deposit will run out, allowing the strata above and below to come in contact, while at another they are widely separated. Thus this red shale deposit which, from Oneida to Onondaga or Cayuga, is not less than three or four hundred feet in thickness, disappears to the west, and at the Genesee river and

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the Niagara, allows the gypseous shales to rest immediately upon the Lockport or Rochester limestones. The result is, that the beds of reddish clay which are so common in the counties east of Ontario, and which have been produced from the decomposition of the red shale strata, are not known at the west, where the strata has disappeared.

No one who is acquainted with the character of the soil, and their agricultural capabilities, in these two sections of western New-York, that is, the northern and the southern, will hesitate to ascribe the difference to their different geological origin. The influence of the lime deposits on the lake slope is too obvious to be mistaken; and the consequence of its absence on the part watered by the streams flowing south is equally certain. The vegetation is in some respects dissimilar, and the agricultural products are, to a considerable extent, distinct. In short, there are few districts in any country where the influence of geological strata on the soil and its agriculture is more marked, or can be studied to better advantage, than in western New-York.

A knowledge of the geological character of soils, and the position of the strata from which they are derived is of great consequence to the farmer. By this he can, in a great measure determine their capabilities, their essential elements, and the changes it is necessary they should undergo in order to the greatest fertility. The strata and the sub-strata, the diluvial deposits, the course of the currents from which they were derived, the mechanical constitution and condition, with their different degrees of porosity or tenacity, are all to be geologically considered. There are, it is well known, some soils called hungry, or which absorb all the manures and other substances put upon them by the farmer with such rapidity and so little effect that their cultivation with profit may be considered as almost hopeless. To the superficial observer such soils do not greatly differ in appearance from another class of soils which constitute one of the most valuable and productive. To the geological character of the strata from which these soils are derived this difference is to be traced. Siliceous gravel or sand from rocks loosely cemented will, when deposited, offer little resistance to filtration, and do not retain water sufficient for the ordinary purposes of vegetation. When this gravel or sand is from strata of which alumina is the principal cement, the deposit will, while it retains all the necessary friability for easy working, also be retentive of moisture sufficient for plants, and yet not be liable to injury from stagnant water. Where the soil is derived from clay shales, it will be too retentive and

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compact, be heavy and hard to work, and subject to injuries from stagnant water either on or below the surface.

There is no operation in the preparation of land for tillage, to which modern agriculture is more indebted than to the system of thorough draining; that which takes off not only the surface waters, but those which coming from below, follow the course of the strata, and render large tracts worthless and unproductive. No manure can produce its proper effect on soil saturated with moisture. Lime does no good unless the soil is in a dry condition, and it produces the most effect when laid on in the driest part of the season; and every farmer who uses gypsum, knows that precisely such is the case with the use of that invaluable mineral. The English farmer finds that bone dust is powerless on wet soils, and our own experience abundantly proves, that barnyard manures are much more efficient on moist soils, after draining, than before. But to drain land properly and effectually, to be certain of making no useless expenditure of money and labor, the geological condition of the farm or field must first be ascertained. It is not enough to ascertain which way the water will run when the drains are dug, but the dip and formation of the water producing strata must also be determined. The first may be done by the eye, or by the spirit level; but the last will require examination of the inclination, and position of the impervious subsoil, and nature of the springs, by attention to the position of the strata, its outcrop, and by using the auger freely. From a want of attention to these things, many farmers fail in their efforts at draining, and expend much money most unprofitably. An ordinary knowledge of the principles of geology, and their application, would prevent this, and ensure all the benefits which skilful thorough draining is sure to give.

Geology, then, is not that useless, barren science, which many who have paid little attention to it, imagine it to be. There are few of the natural sciences, less speculative, or which have more direct, and important practical bearings. To the agriculturist, a knowledge of the facts it affords, is particularly valuable, leading him to practical results in many of his operations, of the first consequence. It teaches the origin, mechanical composition, and qualities of soils, and shows in what respects they may be improved or amended, by the addition of those essential earths, in which they are naturally deficient. A knowledge of the principle of geology, and the causes which have operated to produce the present condition of the surface of the globe, would

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enable the purchasers of land to avoid many of the errors and mistakes into which they frequently fall; and enable the farmer to procure such soils as are suitable for the business he intends to follow, whether the production of grain, or the raising of cattle and sheep; since the fact is indisputable, that the districts in any country are very few, where the soil is equally adapted to grain and to pasture.

As a historical record of our globe, and its mutations, geology does that for us which nothing else can do, so clearly and so definitely. It goes back far beyond all documents written by the finger of man, and on the imperishable pages of the mighty volume it unfolds to us, in characters traced by the hand of Almighty power itself, we read of times and seasons, and eras, to which the assigned limits of man's residence on this globe, is but as yesterday. In studying the characters so traced, man may err, but their can be neither impiety or presumption in endeavoring to translate them, and bring them within the bounds of human understanding, or rendering the truths they teach subservient to utility, and the ends of industry, knowledge and human happiness.

CHARCOAL AS A MANURE.

There is no subject connected with farming that requires so great attention as "*manure*." Let the land be ever so sterile and barren, it has been fully ascertained that by a judicious course of manuring it can be enriched and made productive. Let the soil be as rich and as full of succulent matter calculated for the producing and nourishing the variety of plants necessary to be grown for the use of man and the benefit of the animal creation, a continued course of tillage, and a series of years' neglect of manuring will certainly render it barren and unproductive. Upon the state of the soil on every farm depends the living, we may say, of the farmer and his family, and carrying out the principle in its most extensive sense, upon the activity and intelligence of the farming community depends the whole interest of the entire commercial and civil community of any country. These facts are so evident to any man, who will take but a moment for reflection upon them, that it is a wonder indeed that more attention has and is not directed to this all important question, as to what are the best manures? No doubt the manures that are well calculated to produce a decided and active influence at once upon many soils would not act so readily and so permanently

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upon many other soils; but there are many manures that so act upon all soils; or at best, there are many applications that may be made to almost any soil, that if they are not manures themselves, form the basis upon which the principles of other active manures may be made to produce the most astonishing effects. I have recently had my attention directed to the use of *charcoal*, by the knowledge of some facts that have been communicated in answer to my inquiries, that has induced me to devote a paper to the subject, in the hope, at least, that it will excite attention, and be productive, in the end, of great good to the community, by inducing a series of experiments upon the use of charcoal as a manure, that will result in immense benefit to the farming interest.

I shall not pretend to enter into a series of reasonings upon the chemical affinities of charcoal to the soil upon which it may be applied; these matters I shall leave to those whose education and pursuits have better fitted them to ascertain these things, by enabling them to reach them by chemical analysis, which I am unable to make. I shall simply state the facts which I have observed, and those which I have learned from others, whom I have requested to look to them, together with the results that have been obtained, leaving to others to say whether the question is not of sufficient importance to lead them to try whether the results will not be equally beneficial in very many other situations.

In the neighborhood in which I live there are a great many hearths of coal pits, as they are called; places where wood has been piled, and burned into charcoal, scattered about the country. I have invariably observed, that upon these hearths, in the course of a very few years, a luxurious coat of grass made its appearance, when all around in the vicinity scarcely a blade of grass could be found, and what there was found out of the coal hearth was sickly and dwarfish. This was so well known that in the heat of summer, when the pasture in other places was dried and withered by the summer drought, it was a common practice to drive the cattle to the "coalings," as they are called, sure that they would there obtain food. During the last autumn, business called me into Harford county, in Maryland. While there I was surprised at the exceedingly luxuriant growth of a crop of grain but lately seeded into a field, on Deer creek, and also at the very peculiar appearance of the soil. The soil upon which the grain was growing had a remarkably dark appearance, and appeared to be so mellow and friable as nearly to bury the foot at every step, and although it lay very level did not appear to the touch to be so; not as the soil in the other

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fields around it on the same level. My attention was excited by wha I saw, and I inquired if the field had not been covered with charcoal, and was told that it had been. I inquired when it was done, and was told it had been spread upon it more than *twenty years* ago ! ! I then asked what was the general quality of the crops raised upon it, and I was told that they were invariably fine, both as to quantity and quality. The person who lived upon the property informed me that he had repeatedly hauled the soil from that field and spread it upon the surrounding fields, and he could, for years, or in fact from the time he spread it there to the present day, always see, by the growth upon these places, exactly where he had put it ! !

I had for some time past had my attention directed to the subject but here I found it fully developed to my full satisfaction.

When I returned home, I made it the subject of conversation frequently with the farmers in our neighborhood, and from one of them I learned that when he lived in Chester county, Pa., with his father, a part of their farm became worn out and unproductive. It was abandoned for several years, and in the mean time many coal pits had been formed upon several of the old fields, by drawing the wood there to burn into coal, that had been cut in the adjoining timber lands. After some time they again put those fields under tillage, and he states that wherever a coal hearth had been left, there the crop of grain and the growth of grass was equal, if not superior, to that which grew upon any of their most productive fields. Another case of the application of charcoal I have found in this neighborhood was made by a gentleman in the iron business to his meadow, near the coal house. He had a large quantity of the coal that had become too fine to be used in the furnace; he did not know exactly what to do with it, it was in the way, and he concluded, as the easiest way to dispose of it, to haul it out and spread it upon the grass land. He spread it late in the fall, and for many years he informed me he observed the most astonishing effect produced upon his yield of grass. The quantity was nearly double, and the effect continued as long as he owned the property, which was at least ten years; so he informs me.

From what I can see of its effect, where a large quantity is left upon the ground, as for instance, in the centre of the hearth, it takes a considerable time for it to acquire a sufficient degree of moisture to penetrate to the bottom, and until it has acquired that degree of moisture

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nothing will grow there. Around the outer edges of the circle where it is thrown upon the ground it is soon saturated with moisture, and vegetation is soon facilitated, and goes on rapidly. I should judge, from this, that when about to be applied to land the coal should be ground fine, and then thoroughly wetted and sown or spread with a lime spreader over the surface of the soil. From the circumstance of its being easily powdered or mashed up, I should suppose that the process would be very easily effected by making a floor of plank, say circular, and procuring a good sized stone, to be affixed by a shaft to an upright post, throw the coal into the circular planked way, and attach a horse to the shaft passing through the stone, and drive him round, carrying the stone, in its passage, over the coals. A very simple and easy process, precisely similar to the old fashioned way of grinding or breaking up bark, practised by the tanners, previous to the invention of the cast iron mill now in use. The cost of covering an acre would be trifling, and if it produced no other effect than that of forming a permanent vegetable basis in the soil, for lime to act upon, it appears to me it would well repay a greater amount of labor and expense than would be necessary to try it.

I have just been made acquainted with another result of the application of charcoal to arable land, that if general, from its application, will induce its use by every one who can procure it at a reasonable price: that is, wherever charcoal has been applied *rust never affects the growing crop of wheat!!* My friend who has communicated this fact to me states, that he has observed it particularly, and when the field generally has been "struck with rust," as it is called, those places where he had applied the charcoal *invariably escaped.*

J. H. HEPBURN.

Jersey Shore, Lycoming Co., Pa.

ON WINTERING HORSES.

Shelburne, Vt., Jan. 1842.

Dear Sir—I have the honor to acknowledge the receipt of your communication, addressed to me for the purpose of eliciting information on various agricultural subjects. I have postponed answering it much longer than I intended, but, as there is still time for a letter to reach you before the next annual meeting of your society, I beg you will accept from me, at this late hour, a few words in relation to some of your inquiries.

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As an account of the method I pursue in rearing cattle would not differ, perhaps, materially from an account of most any of the principal farmers of your own State, I shall omit this as unimportant to you, and proceed to give you a few particulars in regard to my management of horses.

For twenty years, or more past, I have kept a large stock of horses, and during this time, with the exception of those I worked, I have not given them any hay in the winter season. I am fully satisfied by my experience in managing horses, that, if not used, they do as well without as with hay, in the winter. In order to do this, I find it necessary to give them a large run of pasture, say from four to five hundred acres, which has been fed by cattle the previous summer, as horses seem to dislike the grass where sheep have been; besides that, they usually eat the grass much closer to the ground than cattle do. By managing my horses in this way, they are kept entirely free from those diseases, which are peculiar to horses fed on hay, and in the spring are in as good condition as though they had been stabled through the winter.

The best remedy I find for horses that are foundered, or troubled with the heaves, or in fine, with most any disease which horses are subject to, is to treat them in the way I have spoken of. Turn them out to pasture in the fall, if they are ailing, and it is ten to one, that they are either very much improved, or entirely cured in the spring.

The opinion of some, that this treatment will not answer for quite old horses, that have been accustomed to have hay in the winter, is without foundation. I have tried them of all ages, from 2 years old up to twenty, and, as far as my experience goes, all do well, though perhaps the advantages of such management are rather in favor of young horses.

I have at present about twenty horses, fourteen of which have gone so far through the winter without hay, and look quite as well as those I have kept in the stable; all in good order, and without any difficulty or complaint, which I am well assured would not be the case with such a number of horses under any other management. With this brief statement of particulars, on my method of rearing horses, I conclude my letter, which it would afford me much pleasure, to know, could be of

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any interest or importance, to the distinguished and valuable society, of which you are a member.

I am with much respect, yours &c.,

EZRA MEECH.

HENRY S. RANDALL, Esq., *Corresponding Secretary of New York State Agricultural Society.*

THE MOST PROFITABLE BREED OF HORSES.

To HENRY S. RANDALL, Esq.

Cor. Sec. of the N. Y. S. Agricultural Society.

DEAR SIR—In offering you my ideas, agreeably to your request, as regards the kind of horse to which the farmer should turn his attention as a breeder, I will remark, I could have wished you had taxed the pen of some one much more competent and experienced than myself. As one of the viewing committee* on horses at the late fair held by this society at Syracuse, I regret to say I was much disappointed; having been led to believe that noble animal had been more thought of by our wealthy farmers and breeders of the west. I am inclined to think that sufficient pains has not been taken in the selection of stock to breed from, from the fact that the exhibition above alluded to, of breeding mares in particular, was not such as would have been very creditable to the county of Onondaga alone. As a farmer and breeder, I am satisfied too much care cannot be taken in obtaining the mare and horse from which we are to breed. This being admitted, then arises this question, what kind of horse shall the farmer breed both for use and profit? Shall it be the race horse, trotter, racker, coach or plough horse? As to the first named, I answer in the negative, for the reason that as a class, they are by no means saleable. If so, too much time, labor, and expense, with much risk and great uncertainty, are requisite to obtain the object,—that of having the horse fleeter than any other; and the business of training horses to run, does not, in my opinion, belong to the good and practical farmer. I object, also, to the second and third named kind of horses, for the same reasons I object to the race horse; it appearing to me that the training of horses to become the fastest trotters and rackers, does not accord with the respectability of a farmer's occupation. It may be said by some that the farmer can have

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*Mr. Ludlow was chairman of the committee.

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his horse trained by others. I would answer, that a business to become profitable, must not only be understood by the principal but must be attended to by him in person. The racer or trotting horse to command a good price must not only be fleet, but the fleetest, or he is of little value; as scarcely a racer or trotter can be found fit for the coach or plough. We now come to the coach horse, meaning the large, powerful, and well made animal, which I contend is not only profitable to the farmer to sell, (particularly so when he is so fortunate as to match a pair,) but is in fact the very kind he wants for his daily use. I have no hesitation in saying the coach horse is much more suitable for all farming purposes than the poney or dray horse—the one being too small, and the other too slow.

Let me persuade my brother farmers to turn their attention, (should they raise colts,) in selecting mares calculated to produce the coach horse, to the following points: great size, fine form, strength and cleanness of limb, together with good color and fine action; recollecting at all times that good limbs are indispensably necessary, and that without them, no horse is of much value, even though in all other respects perfect.

I regret that sufficient time is not allowed me to obtain further information on this subject from others in whom I have more confidence than in myself. Should you, however, deem the above of any consequence to the farming interest, you will make use of it.

I remain, very respectfully,

Your obedient servant,

WILLIAM B. LUDLOW.

Claverack, Columbia county, Jan. 15, 1842.

HISTORY AND CHARACTERISTICS OF THE SEVERAL BREEDS OF SHEEP.

By HENRY S. RANDALL.

The principal breeds of sheep in the United States are the "native," (so called;) the Spanish and Saxon Merinos, introduced from the coun-

NOTE.—At the annual meeting of the N. Y. State Agricultural Society, at Albany, February, 1837, a committee was appointed to report at the next annual meeting of the Society, on "the condition and comparative value of the several breeds of Sheep in the United States." The committee consisted of Henry S. Randall, of Cortland; Henry D. Grove, of Rensselaer; John B. Duane, of Schenectady; Francis Rotch, of Otsego, and C. N. Bement, of Albany. The above consists of extracts from the above report.

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tries whose names they bear; and the New-Leicester or Bakewell, the South Down, and some minor importations of Cotswold, Lincolnshire, &c. from England. Chancellor Livingston also speaks of two races as "indigenous" to this country, which we have not enumerated, as it is not known to the committee that they are now bred in any portion of the United States, viz. the Otter and Smith's Island Sheep, breeds said to have been discovered on two islands on our Atlantic coast. An almost infinite variety of crosses have taken place between the Spanish, English, and "native" families. To so great an extent indeed has this been carried, that there are comparatively speaking, few flocks in the United States, that preserve entire the distinctive characteristics of any one breed, or that can lay claim to unmixed purity of blood.

Native Sheep.

Although this name is popularly applied to the common coarse wooled sheep of the country, which existed here previously to the importation of the improved breeds, there is, properly speaking, no race of sheep "native" to North America. Mr. Livingston, in speaking of a race as "indigenous," only quoted the language of another,* and his informant was either mistaken as to the fact, or misapprehended the term. The only animal of the genus *Ovis*, originally inhabiting this country, is the Argali,† known to our enterprising travellers and traders who have penetrated to the Rocky Mountains, where the animal is found, as the Big Horn. Though the pelage of the Argali approximates but little to the wool of the domestic sheep, they are, as is well known, considered by naturalists to have belonged originally to the same species; and the changes which have taken place in the form, covering, and habits of the latter, are attributed to his domestication, and the care and skill of man during a long succession of years.

The common sheep of the United States were of foreign and mostly of English origin. The writer of the volume on sheep, in the "Farmer's Series," (Mr. Youatt,) speaks of them as "although somewhat differing in various districts, consisting chiefly of a coarse kind of Leicester, originally of British breed."‡ Others have seen or fancied they saw, in some of them, a strong resemblance to the South Downs. Mr. Livingston was of this number.§ But it is far more probable that they

*Livingston's Essay on Sheep, pages 56, 60.
†Godman's American Nat. History.
‡Vol. on Sheep, page 134.
§Essay on Sheep, page 53.

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can claim a common descent from no one stock. Our ancestors emigrated from different sections of the British dominions, and some portion of them, from other parts of Europe. They brought their implements of husbandry, and their domestic animals, to fertilize the wilderness. Each, it would be natural to suppose, made choice of the favorite breed of his own immediate district, to transport to the New World, and the admixture of these various races formed the mongrel family now under consideration. Amid the perils of war and the incursion of beasts of prey, they were preserved with sedulous care. As early as 1676, Mr. Edward Randolph, in a "Narrative of the Lords of the Privy Seal," speaks of New England as "abounding with sheep."*

The common sheep yielded a wool only suited to the coarsest fabrics, averaging in the hands of good farmers, from 3 to 3½ lbs. of wool to the fleece. They were slow in arriving at maturity, compared with the improved English breeds, and yielded, when fully grown, from 10 to 12 lbs. of a middling quality of mutton to the quarter. They were usually long legged, light in the fore quarter, and narrow on the breast and back, although some rare instances might be found of flocks with the short legs, and some approximation to the general form of the improved breeds. The common sheep were excellent breeders, often rearing, almost entirely destitute of care, and without shelter, one hundred per cent of lambs, and in small flocks a still larger proportion. These, too, were usually dropped in March or the earlier part of April. Restless in their disposition, their impatience of restraint almost equalled that of the untamed Argali, from which they were descended; and in many sections of our country it was common to see from 20 to 50 of them roving with little regard to enclosures, over the possession of their owner and his neighbors, leaving a large portion of their wool adhering to bushes and thorns, and the remainder placed nearly beyond the possibility of carding by the "*Tory bur*," so common on new lands.

The old common stock of sheep, as a distinct family, have nearly disappeared, having been universally crossed to a greater or less extent, with the foreign breeds of later introduction. The first and second cross with the Merino, resulted in a decided improvement, and produced a variety exceedingly valuable for the farmer, who rears wool only for domestic purposes. The fleeces are of uneven fineness, being

* Colonial papers of Massachusetts.

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hairy on the thighs, dew-lap, &c.; but the general quality is much improved; the quantity is considerably augmented; the carcase is more compact and nearer the ground; and they have lost their unquiet and roving propensities. The cross with the Saxon, for reasons which we shall hereafter allude to, has not been generally so successful. With the Leicester and Downs, the improvement, so far as form, size, and a propensity to take on fat are concerned, is manifest.

Spanish Merino.

The history of this celebrated race of sheep, so far as it is known, has so often been brought before the public, that it is deemed unnecessary here to recapitulate it. The first importation of them into the United States, took place in 1801. Four rams were shipped by Mr. Delessert, a banker of Paris, three of which perished on the passage.* The fourth arrived in safety at Rosendale, a farm owned by that gentleman, near Kingston in this State. In 1802, two pairs were sent from France by Mr. Livingston, the American minister, to his estate on the Hudson; and later the same year, Mr. Humphreys, our Spanish minister, shipped one hundred, on his departure from that country, for the United States. But they attracted little notice, until our difficulties with England led to a cessation of commercial intercourse with that power, in 1808, and 1809. The attention of the country being now directed towards manufacturing and wool growing, the Merino rose into importance. So great indeed was the interest excited, that from a thousand to fourteen hundred dollars a head, was paid for them. Other and numerous importations soon followed, and unfortunately some of the cargoes arrived in the worst condition, bringing with them those scourges of the ovine race, the scab and foot-rot. These evils and the increased supply, soon brought them down to less than a twentieth part of their former price; they could now be bought for $20 a head. When, however, it was established by actual experiment, that their wool did not deteriorate as had been feared by many, in this country, and that they became readily acclimated, they again rose into favor. But the prostration of our manufactories, which soon after ensued, rendered the Merino of comparatively little value, and brought ruin to numbers who had purchased them at their previous high prices. The rise which has since taken place in the value of fine wool, as well as the causes which led to it, are too recent and well understood to require

* Archives of Useful knowledge."—Cultivator, Vol. I, p. 183.

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particular notice. With the rise of wool, the valuation of the sheep which bear it, has of course kept pace.

The Merino has been variously described. This arises from the fact, that it is but the general appellation of a species, comprising several varieties, presenting essential points of difference in size, form quality and quantity of wool. The Escurial flocks stand first in point of fineness. Attached to the convent *El Escorial*, within a short distance of the capital, and being the private property of the kings of Spain, no pains or care have been spared upon these beautiful flocks. They are of a good size, and fine form, "combining excellence," as is remarked by an intelligent writer,* "scarcely admitting of improvement." It is supposed that most of the Escurial sheep which found their way into this country, are but indifferent specimens of this celebrated variety of the Merino. Their fleeces are somewhat lighter than those of the Paulars, Negrettis, &c. and altogether they bear a close resemblance to the *genuine* Saxons, of which they are the parent stock.

According to Mr. Lasteyrie,† the Negretti "are the largest and strongest of all the Spanish travelling sheep." The Gaudeloupe "have the most perfect form, and are likewise celebrated for the quantity and quality of their wool." The Paulars "bear much wool of a fine quality; but they have a more evident enlargement behind the ears, and a greater degree of throatiness."

As the last named was one of the principal varieties introduced into the United States, a more particular description of it may not be unacceptable. The sheep of the Paular Convent are large, with heavy, but compared with the Escurial or Saxons, coarse fleeces. The wool of the pure bloods contains a considerable quantity of jarr or hair, and it abounds in yolk to such a degree, that it catches and retains at its extremities much floating dust, the pollen of hay, &c. This gives it a peculiarly stiff and hard feeling externally. It however forms an excellent protection against storms and cold. The form of the Paular is generally good, but an unusually large dewlap, so plated and doubled, as to go by the popular apellation of "the ruffle," extends from the lower jaw to the brisket, presenting a great obstacle to the shearer, and an unseemly and ungraceful appendage in the eye of the refined breed-

* Cultivator, Vol. 2, p. 120.

† "Farmer's Series," vol. on sheep, p. 156. We quote Mr. Youatt.

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er. On the sides of the neck, and not unfrequently the face, the skin also lies in loose wrinkles. The head is coarse, and in the male, usually surmounted by large horns. The skill of the American breeder has obviated some of those defects, and there are some few (very few) flocks claiming purity of blood, which have little or no jarr, and an almost entire absence of the throatiness, peculiar to this variety. It is to be apprehended, however, that in most such instances, they owe it to a cross with the Saxons.

There are some other varieties of the Merino, which we shall not pause to describe. Taken collectively, the Spanish rams, according to Chancellor Livingston, yield about eight and a half pounds of wool, and the ewes five, which loses half in washing—making four pounds and a quarter, the average weight of fleece of the rams and two and a half the average of the ewes.* Some varieties considerably exceed this estimate, and probably it would fall short if applied to the prime sheep of any variety. In the celebrated flock of French Merinos at Rambouillet, the average weight, exclusive of tag and belly wool, is six pounds to the fleece. It must be confessed however, that both Mr. Livingston and Mr. Humphreys assert, that the Rambouillet sheep carry more wool than any of the Spanish flocks.† Col. Humphreys, in a latter to the Agricultural Society of Massachusetts, even goes so far as to state "that the improved stock of France yield twice as much wool as those of Spain." Some carefully selected small flocks in this country, which were "salved"‡ after the preceding shearing, have averaged, including the ordinary number of rams, four and a half pounds of wool to the head. The gummy thick wool of the Merino can be but imperfectly cleansed on the back of the animal where it is the universal custom in the United States to wash it, and probably four pounds of *clean* wool would be as high as the maximum average in the choicest flocks. Few overgo three and a half.

The Merino, though the native of a warm climate, becomes readily inured to the greatest extremes of cold, flourishing as far north as Sweden, without degenerating in fleece or form.§ It is a patient, docile animal, bearing much confinement without injury to health, and we never have been enabled to discover in it that peculiar "voraciousness of appetite," ascribed to it by English writers.‖ Accurately conducted experiments have shown, that it consumes two pounds of hay per diem

*Essay on Sheep, p. 39. † Livingston's Essay, p. 71, and note.
‡ Rubbed over with a salve, consisting of oil, wax, &c. which adds to the weight of fleece.
§ Lasteyrie. ‖ "Farmer's Series, Sheep, p. 149.

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in winter; the Leicester consumes from three and a half to four; and the common wooled American sheep would not probably fall short of three. The mutton of the Merino, in spite of the prejudice which exists on the subject, is short grained and of good flavor, when killed at a proper age, and weighs from eight to ten pounds to the quarter. It is remarkable for its longevity, retaining its teeth and continuing to breed, two or three years longer than the common sheep, or the improved English breeds; but it should be remarked in connection with this fact, that it is correspondingly slow in arriving at maturity. It does not attain its full growth before three years old, and the ewes in the best managed flocks, are rarely permitted to breed before they reach that age. The Merino is not a good breeder, the bearing ewes giving little milk, and sometimes neglecting their lambs. Eighty per cent would probably be as high as the average number of lambs usually reared.

Saxon Merino.

In the year 1765, Agustus Frederick, elector of Saxony, obtained permission from the Spanish court to import 200 Merinos, selected from the choicest flocks of Spain. They were chosen principally from the Escurial flock, and on their arrival in Saxony, were placed on a private estate belonging to the elector, under the care of Spanish shepherds. So much importance was attached to the experiment, as it was then considered, that a commission was appointed to superintend the affairs of the establishment; and it was made its duty to diffuse information in relation to the management of the new breed; to dispose of the surplus rams at prices which would place them within the reach of all holders of sheep; and finally, by explaining the superior value of the Merinos, to induce the Saxon farmers to cross them with their native breeds. Popular prejudice, however, was strong against them, and this was heightened by the ravages of the scab, which had been introduced with them from Spain, and which proved very destructive before it was finally eradicated. But when it became apparent that the Merino, so far from degenerating, had improved in Saxony, and that the Saxon wool exceeded the Spanish in fineness and value, the wise and patriotic efforts of the elector began to reap their merited success, and a revolution took place in popular sentiment.

The call for rams became so great that the government resolved on a new importation, to enable them more effectually to meet it, and to

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improve still further the stock already obtained. For this purpose an individual, considered one of the best judges of sheep in Saxony, was dispatched to Spain in 1777, with orders to select three hundred. For some reason—probably because he experienced difficulty in obtaining a greater number presenting all the qualifications he sought, he returned [with but one] hundred and ten. They were from nearly all the different flocks of Spain, but principally the Escurial, and were considered decidedly superior to the first importation. In addition to the establishment at Stolpen, already founded, others were now commenced at Rennersdorf, Lohmen, &c.; schools were established for the education of shepherds; publications were distributed by the commissioners to throw information on the subject before the people; and the crown tenants, it is said, were each required to purchase a certain number of the sheep. When we take into consideration the unwearied pains bestowed on this favorite object by Saxon government, the fact, that the Saxon variety are descended only from the choicest sheep of Spain; and that a degree of care and attention are bestowed on their breeding in the former country entirely unknown in the latter, it is not a subject of surprise, that the emigrant Merino in Saxony excels the parent stock, in the quality of his fleece, and that roundness of form and fineness of bone, which indicate better feeding properties. The Spanish shepherd is little changed from what he was in the days of Cardinal Ximenes, or Pedro IV. with much practical knowledge of his business, but never dreaming of improvement; and his knowledge strangely blended with prejudices as ancient as the pedigrees of his sheep, running back to the period when Spain was a Roman province. He is *not the owner of the sheep under his care*, but the ill-paid servant of a titled family, or a religious order, who, in nine cases [out of ten, are no more disposed or more competent to carry out a system for the improvement of their flocks, than himself. And finally, the Spanish custom of pasturing their sheep during the entire season in large flocks, without inclosures* to render the necessary division practicable, entirely prevents that nice adaptation to each other of the male and female selected for breeding; that counterbalancing of the defects of one parent by the marked excellence of the other in the same points, which exhibits the skill of the modern breeder. In Saxony, and the other

* Neither are there inclosures in Saxony; but the division is effected by the bucks being placed in pens, and the ewes classified and marked. The ewes are from time to time driven in the yard around the pens, and when the teaser has selected one, it is placed in the pen of the buck for which it is marked.

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states of Germany, the case is far otherwise. The electoral flocks, the parent stem, are under the direction of commissioners appointed for their intelligence and knowledge of the subject; and the noted private flocks employed the first agricultural skill of the Saxon land-holders. The low price of labor, too, admits of a degree of attention and constant care over their flocks, unknown in other countries. The attention bestowed upon breeding, may be inferred from the fact, that in many of the largest flocks, every individual sheep is numbered and registered; its pedigree known, and its offspring recorded? The number and age of the sheep is expressed by an ingenious method of marking on the ear, invented by Mr. Thaer, which causes little mutilation, and which effectually distinguishes any number of sheep. "When lambs are weaned, (says Mr. Charles Howard, in a letter to the author of the volume on sheep in the "Farmer's Series,") each is placed upon a table that its wool and form may be minutely observed. The finest are selected for breeding, and receive a *first* mark. When they are one year old, and prior to shearing them, another close examination of those previously marked takes place: those in which no defect can be found receive a *second* mark, and the rest are condemned. A few months afterwards, a third and last scrutiny is made; the prime rams and ewes receive a *third* and final mark, but the slightest blemish is sufficient to cause the rejection of the animal."

Considerable attention has also been betowed in Germany on the breeding of grade sheep—a cross between the Merino and the native sheep of the country. These native sheep were of two varieties, and they bore a strong resemblance to the old common stock of the United States, those which were fed on the uplands being smaller and of finer fleece, and the lowland sheep carrying more flesh and coarser wool. The sheep holders, who were unable to purchase pure bloods, resorted to this cross. The wool of some of these flocks, after a few generations, has rivalled even the electoral in fineness; but it loses in quantity, as the native German carried much lighter fleeces than the Spanish sheep. The sheep themselves are much less perfect in form, the means of the common breeder not permitting, and indeed there being no prospect for an adequate return, should he bestow the same labor that the breeder of pure bloods does—sacrifice for the least defect, and, in short, incur the same expenses; when at best, his sheep will not sell for more than one-eighth or tenth of the price of pure bloods.

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In 1834, the best Spanish wool sold in the English markets at 2*s.* 6*d.*, to 4*s.*; the Saxon at the same time commanded from 4*s.* 6*d.* to 5*s.* 3*d.* per pound.* In the United States, where less difference, and very unjustly, is usually made, the full blooded Saxon sells for about one-third more per pound than the Merino. The fleece in good flocks averages about two and a half pounds, and often, if grown sheep were only included, would rise as high as three. But this is far from the standard of many flocks in the United States, called and doubtless believed by their owners, to be genuine Saxons. This brings us to a most painful part of our subject, and one which we would willingly pass over in silence, were not our obligations to the public paramount to any considerations for the feelings of individuals. In disclosing the frauds practised on the American public, we are compelled, for the purpose of doing justice to the innocent and the guilty, and also for the information of those who have been the purchasers of the imported sheep, to go into a minuteness of detail, which would be otherwise uninteresting, and perhaps be deemed censurable.

The following statement was submitted to the committee by Mr. Grove:

"The first importation of Saxony sheep into the United States was made by Mr. —— ——, a merchant of Boston, at the instance of Col. James Shepherd, of Northampton. They were but six or seven in number. In 1824, Messrs. G. and T. Searle, of Boston imported 77 Saxon sheep. They were selected and purchased by a Mr. Kretchman, a correspondent of the above firm, residing in Lepzig, and shipped at Bremen on board the American schooner Velocity. I was engaged to take charge of the sheep on the passage, and I also shipped six on my own account. I am sorry to say, that as many as one-third of the sheep purchased by Kretchman, (who shared profit and loss in the undertaking,) were not pure blooded sheep. The cargo were sold at auction at Brooklin, as 'pure blooded electoral Saxons,' and thus unfortunately in the very outset the pure and impure became irrevocably mixed. But I feel the greatest certainty that the Messrs. Searle intended to import none but the pure stock; the fault lay with Kretchman. In the fall of 1824, I entered into an arrangement with the Messrs. Searle to return to Saxony, and purchase, in connection with Kretchman, from 160 to 200 electoral sheep. I was detained at sea seven

* "Farmer's Series."

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weeks, which gave rise to the belief, that I was shipwrecked and lost. When I finally arrived, the sheep had been already bought by Kretchman. On being informed of what the purchase consisted, I protested against taking them to America, and insisted on a better selection, but to no purpose. A quarrel ensued between us, and Kretchman even went so far as to engage another to take charge of the sheep on their passage. My friends interposing, I was finally induced to take charge of them.

The number shipped was 167, 15 of which perished on the passage. They were sold at Brighton, some of them going as high as from $400 to $450. A portion of this importation consisted of grade sheep, which sold as high as the pure bloods, for the American purchaser could not know the difference. It may be readily imagined what an inducement the Brighton sale held out to speculation, both in this country and Saxony. The German newspapers teemed with advertisements of sheep for sale, headed "Good for the American market;" and these sheep in many instances were actually bought up for the American market at five, eight and ten dollars a head, when the pure bloods could not be purchased at from less than $30 to $40. In 1836, Messrs. Searle imported three cargoes, amounting in the aggregate to 513 sheep. They were of about the same character with their prior importations, in the main good, but mixed with some grade sheep. On the same year, a cargo of 221 arrived, on German account, Emil Bach, of Lepsig, supercargo. A few were good sheep, and of pure blood; but taken as a lot they were miserable. The owners sunk about $3,000. Next came a cargo of 210 on German account; Wasmuss and Multer owners. The whole cost of these was about $1,125, in Germany. With the exception of a small number, procured to make a flourish on, in their advertisements of sale, they were sheep having no pretensions to purity of blood. In 1827, the same individuals brought out another cargo. These were selected exclusively from grade flocks of low character. On the same year the Messrs. Searle made their last importation, consisting of 182 sheep. Of these I know little. My friends in Germany wrote me, that they were like their other importations, a mixture of pure and impure blooded sheep. It is due, however, to the Messrs. Searle to say, that as a whole, their importations were much better than any other made into Boston.

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"I will now turn your attention to the importations made into other ports. In 1825, 18 Saxons arrived in Portsmouth. They were miserable creatures. In 1826, 191 sheep arrived in New-York, per brig William, on German account. A portion of these were well descended and valuable animals, the rest were grade sheep. In June, the same year, the brig Louisa brought out 173 on German account. Not more than one-third of them had the least pretensions to purity of blood. Next we find 158, shipped at Bremen, on German account. Some were diseased before they left Bremen, and I am happy to state that twenty two died before their arrival in New-York. All I intend to say of them is, that they were a most curious and motley mess of wretched animals. The next cargo imported arrived in the brig Maria Elizabeth, under my own care. They were 165 in number, belonging to myself and F. Gebhard, of New-York. These sheep cost me $65 a head, when landed in New-York. They sold at an average of $50 a head, thus sinking about $2,400! I need not say that they were exclusively of pure blood. A cargo of 81 arrived soon after, but I know nothing of their quality. The next importation consisted of 184, on German account, per brig Warren. With a few exceptions they were pure blooded and good sheep. We next have an importation of 200 by the Bremen ship Louisa. They were commonly called the "stop sale sheep." They were of the most miserable character, some of them being hardly half grade sheep. The ship Phœbe Ann brought 120 sheep, of which I know little, and 60 were landed at Philadelphia, with the character of which I am unacquainted. Having determined to settle in America, I returned to Saxony, and spent the winter of 1826–7 in visiting and examining many flocks. I selected 115 from the celebrated flock of Macherns, embarked on board the ship Albion, and landed in New-York June 27, 1827. In 1828, I received 80 more from the same flock, selected by a friend of mine, an excellent judge of sheep. I first drove them to Shaftsbury, adjoining the town of Hoosic, where I now reside. On their arrival they stood me in $70 a head, and the lambs half that sum."

It should be remarked that the above statements were made by Mr. Grove with the greatest reluctance, and only at the earnest solicitation, or rather requisition of the committee, who conceived it their duty to place the whole circumstances before the public.

It will be inferred from the facts above stated, that there are few Saxon flocks in the United States that have not been reduced to the

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quality of grade sheep, by the promiscuous admixture of the pure and the impure which were imported together, and *all* sold to our breeders as pure stock. This accounts in a satisfactory manner for the different estimation in which this breed of sheep are held in Germany and this country, and for the degeneracy of the pseudo-Saxon of the United States.

In its general habits and characteristics, its docility and patience under confinement, as well as its deficiency as a breeder, and its slowness in arriving at maturity, the Saxon bears a close resemblance to the Merino. It consumes about the same amount of food, and is equally remarkable for its longevity.

The New Leicester or Bakewell Sheep.

The unimproved Leicester was a "large, heavy coarse wooled breed" of sheep, inhabiting the midland counties of England. It is described also as having been "a slow feeder, and its flesh coarse grained, and with little flavor." The breeders of that period regarded only size, and weight of fleece. The celebrated Mr. Bakewell, of Dishley, was the first who adopted a system more in accordance with the true principles of breeding. He selected from the flocks about him those sheep "whose shape possessed the peculiarities which he considered would produce the largest proportion of valuable meat, and offal;" and having observed that animals of medium size possess a greater aptitude to take on flesh, and consume less food than those which are larger, and that prime fattening qualities are rarely found in sheep carrying a great weight of wool, he gave the preference to those of smaller size, and was satisfied with lighter fleeces. To reach the wonderful results obtained by Mr. Bakewell, it was supposed that he resorted to a cross with some other varieties, but it seems now to be well established that he owed his success only to a judicious principle of selection, and a steady adherence to certain principles of breeding.

The improved Leicester is of large size, but somewhat smaller than the original stock, and in this respect falls considerably below the Cotswold and Lincoln varieties. Where there is sufficiency of feed, the New Leicester is unrivalled for its fattening qualities, but it will not bear hard stocking, nor must it be compelled to travel far in search of its food. It is in fact properly and exclusively a lowland sheep. In its appropriate situation, on the luxuriant herbage of our highly cultivated lands, it possesses unrivalled earliness of maturity, and its mutton when

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not too fat is of a good quality, but is usually coarse and comparatively deficient in flavor, owing to that unnatural state of fatness which it so readily assumes, and which the breeder, to gain weight, so generally feeds for. The wethers having reached their second year are turned off in the succeeding February or March, and weigh at that age from thirty to thirty-five pounds to the quarter. The wool of the New Leicester is long, averaging, after the first shearing, about six inches, and the fleece weighs six pounds. It is of coarse quality, and little used in the manufacture of cloths, on the account of its length, and that deficiency of felting properties, common in a greater or lesser extent, to all the English breeds. As a combing wool, however, it stands first, and is used in the manufacture of the finest bombazines, &c.

The high bred Leicester of Mr. Bakewell's stock became shy breeders, and poor nurses, but crosses subsequently adopted, have obviated these defects. In England, where mutton is generally eaten by the laboring classes, the meat of this variety is in very great demand, and the consequent return which a sheep possessing such fine feeding qualities is enabled to make, renders it a general favorite with the breeder. Instances are recorded of the most extraordinary prices having been paid for these animals; and Mr. Bakewell's celebrated buck "Two Pounder," was let for the enormous price of four hundred guineas for a single season! The New Leicester has spread into all parts of the British dominions, and been imported into the other countries of Europe and the United States. They were first introduced into our own country by the late Christopher Dunn, Esq. of Albany, about twenty-five years since. Subsequent importations have been made by Mr. Powel, of Philadelphia, and various other gentlemen.

We conclude this notice of the Leicester, with the following description of what should constitute a perfect animal of this breed, from the "Farmer's Series:"

"The head should be hornless, long, small, tapering towards the muzzle, and projecting horizontally forward. The eyes prominent, but with a quiet expression. The ears thin, rather long, and directed backwards. The neck full and broad at its base, where it proceeds from the chest, so that there is, with the slightest possible deviation, one continued horizontal line from the rump to the poll. The breast broad and full, the shoulders also broad and round, and no uneven or angular formation where the shoulders join either the neck or the back, particu-

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larly no rising of the withers, or hollow behind the situation of these bones. The arm fleshy through its whole extent, and even down to the knee. The bones of the leg small, standing wide apart, no looseness of skin about them, and comparatively bare of wool. The chest and barrel at once deep and round; the ribs forming a considerable arch from the spine, so as in some cases, and especially when the animal is in good condition, to make the apparent width of the chest even greater than the depth. The barrel ribbed well home, no irregularity of line on the back or belly, but on the sides, the carcass very gradually diminishing in width towards the rump. The quarters long and full, and as with the fore legs the muscles extending down to the hock; the thighs also wide and full. The legs of a moderate length, the pelt also moderately thin, but soft and elastic, and covered with a good quantity of white wool, not so long as in some breeds, but considerably finer."*

The South Down.

This breed of sheep has existed for several centuries in England, on a range of chalky hills called the South Downs. They were as recently as 1776, small in size, and of a form not superior to the common wooled sheep of the United States. Since that period a course of judicious breeding, pursued by one man, (Mr. Ellman, of Glynde,) has mainly contributed to raise this variety to its present high degree of perfection, and that too, without the admixture of the slightest degree of foreign blood. In our remarks on this breed of sheep, it will be understood that we speak of the pure improved family, as the original stock, presenting with trifling modifications the same characteristics which they exhibited sixty years since, are yet to be found in England—and as the middle space is occupied by a variety of grades, rising or falling in value, as they approximate to, or recede from the improved blood.

The South Down is an upland sheep, of medium size, and its wool, which in point of length belongs to the middle class, is estimated to rank with half grade merino. The average weight of fleece in the hill fed sheep is three pounds, and in the low land four pounds. But the Down is cultivated more particularly for its mutton, which for quality takes precedence of all other in the English markets. Its early maturity, and extreme aptitude to lay on flesh, render it peculiarly valuable

*Sheep Husbandry, p. 110.

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for this purpose. The Down is turned off at two* years old, and its weight at that age is from 80 to 100 lbs. High fed wethers in England, have reached from 32 to even 40 lbs. a quarter! Notwithstanding its great weight, the Down has, in the language of Mr. Youatt, a patience of occasional short keep, and an endurance of hard stocking, equal to any other sheep. This gives it a decided advantage over the bulkier Leicester, Lincolns, &c. as a mutton sheep in hilly districts and those producing short and scanty herbage. It is hardy and healthy, though in common with the other English varieties much subject to the catarrh or "snuffles," and no sheep better withstands our American winters The ewes are prolific breeders and good nurses. The Down is quiet and docile in its habits, and though an industrious feeder, exhibiting little disposition to rove.

A sheep possessing such qualities, must of course be exceedingly valuable in upland districts in the vicinity of markets. Accordingly they have been introduced into every part of the British dominions, and imported into various other countries. The Emperor of Russia paid Mr. Elman three hundred guineas for two rams, and in 1800 "a ram belonging to the Duke of Bedford, was let for one season at eighty guineas, two others at forty guineas each, and four more at twenty-eight guineas each.† These valuable sheep were introduced into the United States a few years since by Col. J. H. Powell, of Philadelphia, and a small number was imported by one of the members of this committee in 1834. The last were from the flock of Mr. Ellman, at a cost of $60 a head. Several other importations have since taken place.

The following is the description of the perfect South Down by Mr. Ellman, the founder of the improved breed:

"The head small and hornless; the face speckled or grey, and neither too long or too short. The lips thin, and the space between the nose and the eyes narrow. The under jaw, or chap, fine and thin; the ears tolerably wide and well covered with wool, and the forehead also, and the whole space between the ears well protected by it, as a defence against the fly.

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* Among breeders the sheep is termed a two year old, or a two shear sheep, until three years old. In this case the sheep is between two and a half and three years old.

† "Farmers' Series."

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"The eye full and bright but not prominent. The orbits of the eye, the eye cap or bone, not too projecting, that it may not form a fatal obstacle in lambing.

"The neck of a medium length, thin towards the head, but enlarging towards the shoulders, where it should be broad and high and straight in its whole course above and below. The breast should be wide, deep, and projecting forwards between the fore legs, and indicating a good constitution and a disposition to thrive. Corresponding with this, the shoulders should be on a level with the back, and not too wide above; they should bow outward from the top to the breast, indicating a springing rib beneath, and leaving room for it.

"The ribs coming out horizontally from the spine, and extending far backward, and the last rib projecting more than others, the back flat from the shoulders to the setting on of the tail; the loin broad and flat; the rump broad, and the tail set on high, and nearly on a level with the spine. The hips wide, the space between them and the last rib on either side as narrow as possible, and the ribs generally presenting a circular form like a barrel.

"The belly as straight as the back.

"The legs neither too long nor too short. The fore legs straight from the breast to the foot, not bending inward at the knee, and standing far apart both before and behind; the hock having a direction rather outward, and the twist, or the meeting of the thighs behind, being particularly full, the bones fine, yet having no appearance of weakness, and of a speckled or dark color.

"The belly well defended with wool, and the wool coming down before and behind to the knee and to the hock; the wool short, close; curled and fine, and free from spiry projecting fibres."

MERINO AND SAXON SHEEP.

Weathersfield, Vt., Dec. 22, 1841.

To HENRY S. RANDALL, Esq.,
Cor. Sec. of the New-York State Agricultural Society.

DEAR SIR—Three days since I was favored with your circular of the 11th inst., and think the object of your inquiry so closely connected

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with the best interests of our common country, that I cheerfully comply with that part of it which refers to the breed of fine wooled sheep. I should have extended my remarks to several other objects of your inquiry, had my general health, and particularly my eyes, which are very feeble at this time, permitted it. With the strong inclination I have to aid you with my widow's mite, I am in hopes to be able in the course of the winter to make some communication in reply to some of the other questions.

About three years since a gentleman from Norwich, in this State, requested me to give him an account of the first importation of Merino and Saxony sheep into this country, and to make some remarks in relation to the mode of treatment, which I then did; and I now take the liberty to enclose you a copy of that letter, to use as you may think proper. As this letter contains most of the facts within my knowledge respecting Merino sheep, which I thought would interest the general reader, I have preferred sending a copy to writing a new article, which must have been but a repetition of the former in different language. It might have been deemed more respectful to have written a new article, but as men of sense usually esteem the facts relating to any subject of more importance than the dress in which they appear, I concluded you would take no exception to this method of communicating my views.

With great respect, I remain, dear sir,
Your most obed't serv't
WILLIAM JARVIS.

Sir—Feeling the importance, as I do, of a correct and well arranged statistical account of the woollen manufactories of the principal manufacturing States, and of the wool-growing business, which are all essential to each other, I should have sooner replied to your letter of the 8th ult. had my health and various avocations before permitted.

As the Merino breed of sheep have been the stock from which the raw material of all the finer woollen manufactures of modern Europe and the United States has been derived, I will give you a succinct historical sketch of this animal.

It was known in Spain in the time of Columella, a writer on agriculture in the reign of Augustus Cæsar. But whether indigenous in that

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kingdom, or imported into it at an earlier period, is not certainly known; but the latter is the most probable, from their name "Marino," which is the Spanish spelling, and which means *beyond sea*. The Merino sheep of Spain are of two classes, the trashumantes or travelling sheep, and estantes or stationary sheep. The trashumantes are esteemed the best, and undoubtedly are so, because more pains are taken with them, and more attention is given to keeping of the blood pure. All the large and celebrated flocks are of this class; and they are generally called in Spain trashumantes to distinguish them from the estantes; and the best of the trashumantes are denominated Leonesa, to distinguish them again from the Segovian and Sorian, which are also travelling sheep, but not quite so good as the Leonesa. The question may be asked, why are they called travelling sheep? The answer is, that they are driven to the flat, level country in October, to be pastured until April, and in April they are driven into the hilly and mountainous districts to be pastured until October. The Leonesa are pastured in the plains of Spanish Estramadura from October to April, and for the rest of the year are driven to the mountains of Leon and the two Castiles; those plains being subjected to an almost unvarying drought from the 1st of May to the 20th of September, but are refreshed with abundant rains from the latter time until the last of April, during which period the thermometer is seldom below 40° above zero of Fahrenheit.

So highly did the Spaniards value this breed of sheep, that they were prohibited by law from exportation under penalty of transportation to the mines, or confinement to the galleys for life. The first Merinos which it was known were allowed to be exported from Spain, were two hundred ewes and one hundred bucks to Saxony, in 1765. This was a special favor granted by the King of Spain to the Elector. After thirteen years' trial, it was found that the Merino had not deteriorated in Saxony, and that the native stock of the country had been greatly improved by crossing; and in 1778 the Elector again applied to the King for license to obtain the same number, which was granted. Those 400 ewes and 200 bucks were the source of all the improvement which has since taken place in the flocks of that country, the native race being of a coarse, inferior quality.

So soon as the Merinos reached Saxony, they were made an object of governmental attention. A board of scientific agriculturalists was appointed to draw up rules and directions for their management, and to disseminate the breed throughout the Electoral dominions. Woollen

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manufacturers were likewise encouraged, and the good effects of this wise policy soon became obvious in the increased wealth of the country, and the amelioration of the condition of all classes of society. When the Merino was first introduced into Saxony, that Electorate and all the rest of Germany were dependent upon England and France for a supply of a considerable part of their woollen goods; but at this time Saxony, as well as several of the other States of Germany, who have introduced the Merino, manufacture all the woollens that are necessary for their consumption. In addition to which, Saxony now exports a considerable amount of woollen goods annually; and she and the rest of Germany an immense amount in wool. The next Merinos which were allowed to be taken out of Spain were for the King of France, in 1786, which were placed on the royal estate of Rambouillet. The next year the King of England obtained a royal order to take out thirty. The first that were sent to this country was in 1802, by Chancellor Livingston, of New-York, then Minister to France, who obtained a buck and two ewes from the Rambouillet flock; and the same year the Hon. David Humphreys, who had been Minister to Spain, got out two hundred through Portugal, which were sent to Connecticut, and placed on his farm near New-Haven. The value of this useful animal was not then appreciated in the United States; and those two importations remained unnoticed and almost unknown, until the embargo in 1807, and the non-intercourse of the two subsequent years cut off our accustomed supply of woollen goods from England, and began to call the attention of reflecting men to the necessity of rendering ourselves independent of foreign nations for the supply of those all-essential articles of human comfort, by the establishment of woollen manufactures among ourselves.

When the second irruption of the French armies into Spain in the winter of 1809, drove the Spanish Junto from Madrid to Badajos, the Junto was without money and without resources, and they durst not levy any taxes on the Estramaduras, lest they should disgust that province, and the people should declare in favor of the French. No alternative was therefore left them, other than to sell the four flocks of Merinos which had been confiscated with the other property of four grandees who had joined France, with license to transport them out of Spain. Those flocks were the Paular, which had belonged to the celebrated Prince of Peace, the Negretti, which had belonged to the Conde Campo de Alange, the Aqueirres (the wool of which was known

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England as the Muros, this flock having been the property of the Moors before their expulsion from Spain,) which had belonged to the Conde de Aqueirres, and the Montarco, which had belonged to the Conde of that name. Those flocks were then in the vicinity of Badajos; and when confiscated, the two former numbered about five thousand each, and the two latter about twenty thousand each; but they had been reduced by being unceremoniously slaughtered for the use of the armies, to about seven thousand five hundred Paulars, six thousand Negrettis, four thousand Montarcos, and three thousand Aqueirres. Four thousand of the Paular flock were sent to the king of England in compliance wite ,the application of his minister, and General Downie and I purchased the remainder. Sir Charles Stewart, the British minister, purchased the Negretti flock, of which I selected a small part, and the remainder he sent to England. I also purchased about one thousand three hundred Aqueirres, and selected about two hundred from the Montarcos. I likewise purchased in Spain two hundred of the Escurial flock from the mayoral, which were the only Escurials ever sent to this country. I shipped in 1809 and 1810 about three thousand eight hundred and fifty to this country of the aforementioned flocks, being all which I purchased in Spain, and which were distributed as follows: about one thousand five hundred to New-York; one thousand to Boston and Newburyport, including three hundred and fifty which I sent to be reserved for me; the remainder were sent to Philadelphia, Baltimore, Alexandria, Norfolk and Richmond, and a small number to Wiscasset, Portland and Portsmouth, as I was disposed to distribute those valuable animals to every State which would be likely to profit by the acquisition. Those I reserved for myself were composed of about half Paulars, a quarter Aqueirres, and the other fourth of Escurials, Negrettis and Montarcos, which I subsequently mixed together.

There were sent in the latter year (1810) by others about two thousand five hundred, composed of Paulars, had of General Downie, Montarcos, Aqueirres and Gaudaloupes. Part of those went to New-York, part to Boston. All those sheep were Leonesa, trashumantes, and were of the prime flocks of Spain.

I have been able to be thus minute in relation to the Merinos imported in 1809 and 1810, as I was then American Consul at Lisbon, which was the port from which they were all shipped, it being only about one hundred miles to Badajos, and the nearest seaport to that place; but I cannot answer the question regarding the importation of

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Saxony sheep so accurately. My impression, however, is that Mr. James Shepard, of Northampton, is entitled to the merit of the first importation of this branch of the Merino breed. I think in 1823 he imported two or three bucks, and recommended the importation of this breed to others. Some were also imported in 1824, and in 1825 and 1826 the Messrs. Searles, of Boston, imported three or four cargoes, and some others were also imported into Boston, and likewise some into New-York, perhaps in all to the number of twelve or fifteen hundred. I have never been able to ascertain from what flocks the first Merinos carried into Saxony from Spain were taken, nor do I belive it is known here out of what Saxony flocks those which were imported were purchased.

At the sales at Brighton, the only point attended to was the fineness of the wool, without any inquiries being made as to the purity of the blood, or any remarks being made about it by the venders.

With the exception of the royal and electoral flock, and the flocks of a few of the nobility that obtained some of the original importation from Spain, who, I have understood, have kept them pure for stock flocks, I have some doubts whether much attention has been paid in Saxony to the pedigree of their sheep. It is certain that in the importations I have seen, there was a far greater difference in the quality of the wool than in any Spanish flocks that have come under my observation. I have found a very perceptible difference in sheep of the same ear mark, and a very striking one in those of different ear marks. Out of a hundred Spanish Merinos, five may be selected that are a shade better than the rest, and five that are somewhat inferior; the other ninety will be so nearly alike as to the quality of the wool, as to leave but little other choice than what arises from shape and size. A question will very naturally arise here, how it happens that the Spanish Merinos should be so much better built and stronger, and yield a fleece one-third heavier than does the Saxony, when the latter is derived from the same stock? This is a question of difficult solution. The best reasons that I can assign for it are, that all the feebler sheep of Spain sink under the fatigue of travelling from the winter to the summer pastures, and *vice versa;* that owing to this mode of management, the shepherds of Spain feel the particular necessity of paying attention to the strength of the male, as well as the fineness of his wool; and as every attentive breeder must have observed that the most healthy and vigorous sheep carry the heaviest fleeces, the Spaniard in selecting for strength has

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also secured heavier fleeces. From the mildness of the climate of Spain, too, the Spaniard is enabled to keep his sheep in the open air the year round, which may also have contributed to give them a better constitution.

The climate of Saxony and the neighboring States of Germany, where those sheep are bred, is not dissimilar to the northerly part of the State of New-York and the southerly part of New-England, in which shelter is necessary to defend sheep against the pelting storms in winter. The Saxons, too, carry this system of housing far beyond us; they are not only very careful to have warm shelters in the winter, but most of their breeders build sheds in their pastures, into which their sheep are driven during the stormy weather of spring, summer and autumn, being only let out a short time to feed in the fore and afternoon, while the storm lasts. This treatment alone would enfeeble the constitution of those animals. Owing to the very low price of labor in Germany, too, their flocks are constantly attended by shepherds, whose watchful care makes it of less consequence to have vigorous lambs and healthy offspring than it is in Spain, particularly as in Saxony the sheep are not pastured at a great distance from the winter establishments. For these reasons the Saxon breeders have not found it so necessary to pay as much attention to the strength of the sheep as in Spain, and it is probable, therefore, that the principal object with them in the selection of both the male and female, has been the fineness of the fleece, without any great regard to the animal's constitution. But whatever may be the cause, it is certain that the Saxony wool is somewhat finer than the Spanish. This fact partly answers the question whether the wool of the imported sheep has deteriorated in this country. Twenty-five years' experience satisfies me that the wool of the Spanish Merino has rather improved. About six years ago, I compared my Merino wool with fifteen or twenty samples of the Paular flock that had been sent me from Spain, when I purchased; and eight or ten judges who examined the two, gave a decided preference to that taken from the backs of my sheep. Mr. James Shepherd, when he carried on the factory at Northampton, and who purchased my Merino wool for several years, told me that the superfine broadcloths made from my wool, handled softer than did those from the best imported Spanish wool he could purchase. When the Merino has been bred with attention and care, the wool has not deteriorated in any other country than England, and the deterioration there has unquestionably been owing to the uncommon humidity of that climate.

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You next inquire, what is my particular mode of management. I at an early day became satisfied, that if the Merino could not thrive under a similar management to that which our good farmers afforded to the native breeds, they would never become popular in this country. I therefore adopted a management similar to theirs, and happily found that they throve under it beyond my most sanguine expectations. Attached to my barns I have sheds connected, with large yards; in those yards I place my racks, and carry out the hay and put into them morning and evening for their food; at noon I give them a gill or half a pint of oats a head, in troughs; if a half pint of oats is given, a little less hay is fed out, if a gill, a little more; about two pounds of good hay with a half pint of oats per head per diem, will keep them in good case, or about two pounds and a half of hay with a gill of oats. When I have an abundance of hay, I give no oats, but feed out about three pounds of hay per day, at three times, morning, noon and night; although I think it makes but little difference whether this quantity is fed out three times a day or twice, for it must be remarked, that when sheep are in pasture, they rarely feed from ten till three or four o'clock in the afternoon. I leave the doors of my shed open, and let the sheep go in and out when they please. My sheds are occasionally strawed to prevent their becoming very filthy, and there is no waste in so doing, as all the best of the straw the sheep will eat before laying upon it.

I am careful to have water both in my yards and pastures, as I think water essential to their health as well as thrift. If the hay was well salted when put into the mow, no salt will be necessary; if not, they will require salting weekly. My rule is, to take them up in the fall when the grass ceases to be nutritious, owing to severe frosts, which is ordinarily about the 25th of November, and never let them go out of their yards, until I turn them to pasture in the spring, which is commonly about the 25th of April, to the 5th of May, according as the grass is more or less advanced. Some attention ought to be paid to the ewes in the lambing season; and in cold easterly storms, or in heavy rains they ought to be housed at night, when the lambs are young. During the rest of the season no attention is given to them except what is necessary in shearing, and to salt them once a week, and see that the fences are up. It is better to salt them in long narrow troughs, than on the ground, as they waste less, and all get an equal share. Six by six slit work, dug out triangularly with an adze, makes the best

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troughs for salting. I ought to have mentioned above, that if corn is given, only half the quantity is required that it does of oats, but I think oats are the best for sheep. Between the 1st and 10th of May, I think the best season for lambing.

My remedy for foot-rot is, three parts of blue vitriol, and one part verdigris, pulverized as fine as Indian meal, then pour in sharp vinegar made as hot as water with which we commonly scald hogs, not boiling, and pour in as much vinegar as will make it of the consistence of thick milk, stirring it briskly all the while; clean the hoof with a knife, and put on the mixture with a small paint brush, taking care that it comes in contact with the inflamed part; it is also better to put it on the sound hoofs of the affected sheep as a preventative. Strong tobacco liquor is the best cure for the scab, immersing the sheep all over except the head, and scrubbing the part well that is affected. This remedy does best directly after shearing, but will answer any time during the summer or fall months; for lambs the liquor must be much weaker. For bloating, the best remedy is a great spoonful of castor oil, mixed with a tea spoonful of pulverized rhubarb, and about a gill of hot water, which may be put down the sheep's throat with a great spoon.

Very respectfully,

WILLIAM JARVIS.

To S. RANDALL, Esq.,
Cor. Sec. of the New-York State Agricultural Society.

The subject to which I beg leave to draw the attention of the Society is sheep. The coarse wooled mutton sheep of England, the Spanish Merino and the Saxony Morino, the latter of which produces the raw material of which the most elegant as well as useful woollen fabrics are manufactured. There is probably no other domestic animal in this country, or in other parts of the world of so much intrinsic value.

The demand for the finer fabrics of wool has been, and is constantly increasing, and what was called a fine cloth thirty years ago, is at the present day considered a common article. There is moreover an increasing taste to wear a finer coat, which is not confined to this country, but is spread throughout the civilized world. Experience also

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proves that the fabric of fine wool, if made of the same weight, is much more lasting than that of the coarser quality.

It may, therefore, be safe to calculate on a constant demand, and though there has been a rapid increase of fine sheep in Europe, and the improvement of the common breeds has been astonishingly great, yet there is a demand for all that has as yet been produced. Nor has the large quantities of fine and improved wools from Australia, New South Wales, Van Dieman's land, Buenos Ayres, Asiatic Russia and other distant regions, where the Saxony Merino has been introduced, caused a surplus in the markets of the world. In all those countries and on the continent of Europe they are acknowledged as the best breed of sheep.

England is perhaps the only country where they are not very extensively bred. Various reasons have been assigned by various writers as the cause. It is said by some that the humidity of her climate does not admit of it; by others, that the high price of animal food justified the farmer in raising a mutton sheep of large carcass, as a primary, and wool as a secondary consideration; and to the latter reason I would add my opinion, for we have the evidence of Lord Western and Sir H. Vavasour that the Saxony sheep do thrive in that country. But as meat of all descriptions have an enormously high price there, it is more an object of the farmer and flock owner to raise them principally for the carcase. It is not so, however, in this country, where mutton is very low, and is a secondary object.

While, therefore, the farmers of England aim at the largest carcase, the farmers of this country should aim at the greatest quantity and the best quality of wool.

It is said that nearly 50,000,000 of coarse sheep are kept in Great Britain and but few flocks of the Spanish and Saxony Merino; but I am well persuaded if the price of mutton was reduced to that of this country, they would soon be supplanted by a finer race, and these would be of the Saxony Merino breed. According to Youatt "*they are considered decidedly superior to the Spanish Merino, not only in the wool, but their general propensity to fatten,*" and he adds, "*if the British sheep is ever destined to yield a finer wool, sacrificing little or nothing in point of carcase, it must be by means of the Saxon, and not the direct Spanish Merino.*

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"Lord Western, an experienced and scientific agriculturalist, is improving his former merinos extensively and beneficially by the Saxon cross and some of his native breed. It will be seen that the Saxony frame differs materially from the Spanish Merino. There is more roundness of carcase and firmness of bone, and that form and appearance which indicate a disposition to fatten, which are tolerably certain pledges that the carcase will not be entirely sacrificed to the fleece." He further states that "Sir H. Vavasour has imported some sheep from a celebrated flock near Dresden; they were brought by land to Hamburgh, a distance of between 500 and 600 miles, and thence shipped to Hull. Neither their long journey, nor their sea voyage, in the slightest degree impaired their condition—a proof of the soundness of constitution which promises something to their future usefulness.

My own experience goes fully to establish these facts. My importations of Saxony Merinos, of 100 ewes and lambs, and rams in 1827, 75 ewes, lambs and rams in 1828, sometimes called Electoral Saxon sheep, were driven at the rate of from 15 to 18 miles a day to Bremen, whence I shipped them to New-York without losing a single sheep, nor had they lost in condition. From New-York they were brought up the river on board a tow boat to Troy, crowded in a small place, and trodden upon by the hands, whereby some got injured. But notwithstanding their long journey by sea and by land, with *seven* weeks' confinement in a ship hold, they were remarkably healthy and in good condition.

But a more recent trial of their strength of constitution cannot fail to interest. I have sent the past fall, under the care of my shepherd, between 200 and 300 ewes, rams and lambs to the State of Ohio, a distance of nearly 600 miles, at the rate of 15 miles per day. After they had travelled 300 miles I saw them, and found they had improved in condition; and a letter now before me from my shepherd informs me that they had endured the rest of their journey remarkably well; that they had gained in condition, and if it were required, could have been driven 600 miles more without injury.

If these facts prove anything, they must prove that the Saxony Merino possesses a good constitution, and is not that "feeble animal with a poor constitution" as has been represented by some breeders; and is, in my opinion, strong evidence, in addition to other facts which I shall mention hereafter, that with a given quantity of food, as much,

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even more value of wool and carcase may be produced from them, than from any other breed of sheep.

It has been asserted that the Saxony Merino, were of feeble constitution, and Consul Jarvis, of Vermont, an eminent breeder of the Spanish Merino, attempts to account for it, on the supposition that the latter transhumantes, acquire constitution, by performing annually two long journeys of 300 miles each, to and from their summer and winter quarters, while the former had lost it, by being stationary. This may be plausible in theory; but, I believe it is not supported byexperience and facts. The Spanish shepherds, in their semi-annual journey, drive their sheep from 9 to 12 miles per day, and at this short distance, "*numbers perish on the road of fatigue.*" While the Saxon endure driving a journey of over 15 miles per day, and none perish on the road of fatigue.

But I have never been able to discover the principle, in theory or practice, why long journeys should impart a stronger constitution to sheep, and by being stationary, should weaken it. The fact is, that in Germany, many a flock travels four, five to eight miles a day, to and from their hurdles to pasture, and most of the time, have to pass narrow roads, without fences, between grain fields, hurried and crowded along by the shepherd and his dogs, to prevent the sheep from injuring the grain. Yet, I have never been able to discover that they had any better constitution than those which had easy access to their pasture. The theory, therefore, that the Spanish Merinos have acquired constitution by travelling, and the Saxony have lost it by being stationary, must fall to the ground.

The origin of the Saxony Merino, as is well known, is Spain, and has already been brought before the Society in the shape of a report by a committee, and also, the introduction of the Saxony into this country. I need, therefore, not repeat it here, but would refer the reader to that report, as it throws much light upon the subject. I may, however, be permitted to state, that not all the Saxony sheep imported were of pure blood, but, a great share consisted of selections from cross bred flocks, and were imported on speculation; and, in their selection, fineness of wool was thought the only necessary requisite, and other important points were overlooked; but justice requires me to say, that on the other hand, many sheep were pure and well descended.

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But the crossing of the native and the variety of grade sheep as we find them in this country, with the pure Saxony Merino, has been more beneficial than that of any other cross. I am acquainted with flocks in my vicinity which have been improved by them, that give a fleece far superior in quality to the best Merino flocks in the country, averaging three pounds, and in some instances reached three and one quarter, of cleanly washed wool per head, and in flocks of 500 to 1500 sheep; a quantity not often exceeded by the best pure Merino flocks of any extent in the country.

I have purchased no inconsiderable quantities every year for many years past, and a great variety of different lots of wool came under my inspection, but I have never found a Merino flock that averaged much over that quantity. If there are those that do exceed it, it is produced eitherby an extra quantity of feed, or an extra quantity of yolk and dirt that adheres to the wool.

But in another point of view I wish to compare the Saxony with the Spanish Merino, and that is the quantity of feed which they respectively require. Mr. Jarvis, of Vermont, who keeps a flock of the latter, and is their warm advocate, says, in his letter appended to Benton & Barry's sheep statistics, "*that he gives his sheep two and a half pounds of good hay and a gil of oats, or two pounds of good hay and half a pint of oats, or three pounds of hay and no oats, per day.*" And I have been informed by gentlemen who have drawn stock rams from his flock, that his average weight of fleece is 3¼ to 3½ lbs. per head; whereas the most liberal feeders of the former give two pounds of hay per day, producing three pounds of wool per head. I very seldom feed so much as two pounds, and only then when I have two-thirds of breeding ewes and wethers, and hay plenty.

When I am short of hay, as was the case last winter, and again this winter, my sheep have to content themselves with 1¼ lbs. of hay per day, or its equivalent in grain, roots and straw, and a portion of my flock have to content themselves with a still less quantity. On this daily allowance per head, my sheep passed through the last winter without any loss, and it was remarked by all who saw them in the spring, that they looked remarkably well. But lest any one should object to the term "remarkably well," as being too indefinite for his information, I would state that I raised from 119 ewes 112 healthy and thrifty lambs, five ewes being barren; and the average number of lambs from an hundred

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ewes for ten years past exceeds *ninety*. If the ewes had not been in good order that number of lambs could not have been raised from them, or if they had been "poor nurses," as has been asserted by some breeders, that number could not have been raised.

My flock consisting of ewes and lambs, and a few bucks only, averaged last clipping $2\frac{1}{16}$ lbs. (two pounds eleven ounces) per head. If I had had a proportionate number of wethers, though more feed would then have been required, I doubt not the average would have been three pounds.

If then the Spanish Merino, with three pounds of hay each per day, produces $3\frac{1}{4}$ to $3\frac{1}{2}$ lbs. of wool per head, and the Saxony Merino with one and a half to two pounds of hay each per day, produces from two and a half to three pounds of wool per head, it will easily be seen which produces the most on a given quantity of feed. And I can say moreover that my wool was CLEAN and *no dirt, filth* or *clippings* rolled inside the fleeces. I emphasise the last sentence, as but too many farmers in this respect are not so particular as they ought to be, and the manufacturers have great cause for complaining of the bad condition, the filth and dirt rolled up inside the fleeces. No American farmer ought to be guilty of such dishonorable and reprehensible practices.

I have stated that a portion of my flock had to content themselves with less than one and a half pounds of hay each per day. That portion consisted of 29 ewes, lambs and one yearling ewe. I commenced feeding them two quarts of oats daily, on the 9th or 10th of Nov. 1840, to supply a deficiency of pasture, which was very short; by the 19th I had increased that quantity to eight quarts, which I continued to give them until the commencement of winter. They were then in excellent store condition. I then put them in an airy stable, and their daily allowance was as follows: eight pounds of choice hay in the morning, eight pounds of corn and cob meal (corn ground in the ear) at noon, and eight pounds of choice hay again at night, salt twice a week, and as much water as they would drink, which was from 30 to 45 quarts daily. This quantity was continued to them until the 10th of April, when I gradually diminished it, at the same time giving them the range of a pasture field. They were washed and shorn with my other sheep, and I obtained 91 lbs. of superior wool from the 30 sheep; a quantity as *great, if not greater, than can be shown to have been produced from any breed of sheep whatever on the same quantity of feed.*

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I aim to have my sheep in good condition before winter sets in, which I consider an important point in sheep husbandry, and which but too many of our woolgrowers and farmers overlook. Many let their sheep come into winter too low in condition, which accounts for the great losses they often sustain; and to lay the fault somewhere, they lay it at the door of the constitution of the animal, and pronounce it "feeble," when in fact no one was to blame but the owner himself. The constitution of the sheep was *good*, but the judgment of the owner was *poor*. A few bushels of grain fed at a proper time late in the fall, when pastures are poor and grass has lost a great portion of its nutriment, is worth double or triple the amount when winter has set in and sheep are reduced in condition. I cannot recommend too strongly this part of sheep husbandry to the attention of woolgrowers and farmers in general, as in a great measure the prosperity of the flocks through the winter and the following spring depends upon it: for they will shear more wool, raise more lambs, require less feed and lose less sheep.

Another subject which I would recommend to their attention relates to the salting sheep. In summer this is done once or twice a week, and in winter by feeding salted hay, as it is the general practice of salting hay at haying time, and it is generally believed that it cures and preserves hay the better. This, however, I believe is not founded in fact. I discontinued the practice seven years ago, to the evident benefit of my flocks and herds, but I keep salt by them in troughs, and let them go to it whenever their inclination prompts them, and my hay is equally as well cured.

But while I have reverted to the reprehensible practice of putting up wool in bad condition, and in which no farmer who values his character as a woolgrower, or an honest man, for one moment ought to indulge. It gives me great pleasure to state that in the great quantity of wool which, as a purchaser, I have had the opportunity to examine, I find a great majority of clips are in good, and many lots in excellent condition, which commendation is more applicable to the woolgrowing regions of the State of New-York than any other State in the Union.

I apprehend, however, that there is an error, fatal to the true interests of the farmer, continually adverted to in the agricultural journals of the day, whether designedly or inadvertently I will not say—that is of raising mammoth cattle, swine and sheep, without taking into ac-

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count cost of production. And it is greatly to be lamented, that gentlemen giving accounts of great and splendid animals, do not have them accompanied by accurate statements of the cost of production, which it would be very desirable to know, as farmers then could make an estimate whether there is any or more profit in raising them or those of less size. For if one calf has the milk of one, and as is sometimes the case, of two cows all summer, and as it grows up, meal and other niceties besides, and another, half the milk of one cow four or five weeks, and then skim milk a few weeks longer, it is easy to calculate which costs the most!

I have, however, not intended to make any remarks on cattle at this time, and, therefore return to my subject. I say then that we see many statements of extraordinary large and fat sheep and heavy fleeces, but I have always looked in vain for statements accompanying them, of the amount of feed they have consumed to produce that heavy carcase or fleece. I have searched all the English and American authors in my possession, but they are all silent on the subject, excepting one, and that is Youatt. He states that a writer in the Farmers' Journal "*fed his ewes twenty-five pounds of mangel wurtzel and five pounds of good hay each per day.*" I can keep at least five ewes on that quantity! What breed of sheep they were is not stated, and we are left to surmise that they belonged to some extraordinary breed of which some "Crack articles" appear in the agricultural papers of the day, and which are held up to the wonderment of the world, and as examples for the farmer to follow. But let them belong to any breed whatever, certain it is that they are monstrous great consumers, and would never compensate the farmer of this country, who has got to sell his mutton at a low price, for raising them. In England, where meat is very high, they may answer, but in a country like ours, where it is generally low, they would not answer, as the flock owner's main dependence is the *wool!*

The large mutton sheep have been tried, faithfully tried, and accurately experimented with, in Germany, where mutton brings more than double the price it does here. They did not answer there, and were abandoned; and it was found that the pure Saxony Merino, and the well bred grade sheep, (crosses of the native and Saxon,) returned a far greater profit, for a given quantity of feed. If then, they were not profitable in that country, I would ask what prospect there is for the

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great mass of farmers, to make them more profitable than the smaller breeds of sheep bearing fine wool?

Let us, then, return to the true principle of agricultural economy; *that he who produces most, at least expense, is most deserving, and the sheep which returns the greatest profit, at the least expense of keeping, is most valuable.*

But, in another point of view, I wish to present this subject. I have said, before, that the Saxony Merino has a propensity to fatten, let us now see to what extent, and what amount of feed, a wether consumes to make him fat. An uncle of mine, in Germany, who keeps a flock of them, of between 3000 and 4000, some years ago, fatted 400 three years old wethers; he commenced feeding them about the middle of December; the 400 received 26 German bushels, or 3½ lbs. each, per day, and as much as they would eat of wheat and oat straw, some pea vines and mouldy clover hay. The first of May following, they were sold to the butchers, and their live weight was 135 lbs. on the average, their dead weight, 88 lbs. or 22 lbs. to the quarter; a number of them reached 30 lbs. to the quarter. They were washed and shorn before they were delivered, and their average weight of fleece, was 4¼ lbs. (four and one-quarter,) eleven months growth, and sold for one rix dollar per pound. They were in common store order, at the commencement of feeding.

Let us now turn to the large mutton sheep of England, and compare the two together. If we take as the basis of our calculation, Youatt's statement, and assume that a grown wether requires as much feed to fatten him, as is required for a suckling ewe, namely, 25 lbs. of mangel wurtzel, and five pounds of good hay, when, according to Wagoner, 4.60 lbs. of mangel wurtzel are equal in nutriment, to 2.00 lbs. potatoes, or in round numbers, 25 lbs. of the former, are equal to 11 lbs. of the latter; hence, the 25 lbs. of mangel wurtzel, and five pounds of good hay per day, would be sufficient to fatten three and one-quarter of the Saxony Merino wethers, to one of the English mutton sheep, in a given length of time. And from the former, we would obtain 286 lbs. of excellent mutton, and fourteen pounds of superior wool, but what amount of mutton and wool we would receive from the latter, we are again left to surmise. But Mr. Youatt states, "that the heaviest pure Leicester sheep, of which there is any authentic account, belonged toMr. Morgan: his weight, alive, was 368 lbs. and

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the weight of carcass, was 248 pounds;" and, "that the heaviest of Mr. Painters' pen of 32 months old Leicester wethers, exhibited at the Smithfield cattle show in 1835, weighed 165 lbs. the other two, were 155 lbs. and 143 lbs;" and he further states, that the average weight of fleece of the New-Leicester is between 6 and 7 pounds."

I have no desire to enlarge upon this subject, and multiply cases, as I think, I have clearly shown that the pure Saxony Merino, not only has a great propensity to fatten, and that on a given quantity of feed, they produce as much mutton and wool as other celebrated breeds of sheep. That the quality of its wool is superior, is admitted by all. I might here close my communication; but there is another subject which I feel it my duty to notice. I have reference to crossing the Spanish or Saxony Merino, with the large mutton sheep of England.

This subject was brought before the agricultural community, and highly recommended in some portions of Germany; great advantages were promised to result from it, but it proved to be a delusion, and was abandoned. It has also been recommended and tried in England, and if I mistake not, was equally unsuccessful. Were it, however, confined to those countries alone, not a word would come from my pen; but, as it has been brought to the notice of the farmers of this country, and recommended for their adoption, not as the result of long tried and accurate experiments, but, more as the result of a "*belief*," I feel bound to notice it.

I do not wish, however, to deter any gentleman from adopting the recommendation, if he chooses, but I cannot nevertheless abstain from stating the experiments of others, and what I believe to be facts and which may prove to be of advantage to a portion of our farmers.

The crop particularly recommended is the Spanish or Saxony Merino ewe, with the South Down Ram, and the objects to be attained are a greater weight of carcass and fleece, and a qaality of wool equal to Merino. The question, however, is: Can or have these objects been attained? If attained or attainable, at what cost? Is the increased weight of carcass commensurate with the increased quantity of feed the animal requires? And does the greater quantity of wool, if any, for this is a doubtful point, as the South Down is not a heavy fleece

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bearer, compensate the loss of quality? These are points first to be determined before we recommend the crop to others.

In Germany where the experiment was faithfully and accurately tried for a series of years, it proved as I have already stated a failure. It is true the weight of carcass was increased, but at the same time the animal became a greater consummer; the weight of fleece was a trifle increased by the first crop, but as the crossing advanced, it diminished again, and the superior quality of the wool was wholly lost. "The first cross was bad, the second was worse, and the third was worst;" and the wool was such a heterogeneous mass, that innumerable different qualities appeared on the same individual, but the bad greatly proponderating over the good. It fell far below the quality of full blood Merino. It was deficient in those qualities so necessary to make a good fabric, namely fineness, evenness of fleece, evenness of staple, evenness and closeness of curves, for the more regular and finer or smaller these curves, the finer, the softer, the more flexible and the more elastic is the wool generally, and when rightly manufactured produces a fabric the most soft, the most flexible, the most compact, and the most durable.

The theory then that the quality of the wool is between the Saxony and Merino, and equal to the latter, is not supported by facts and must fall to the ground.

With regard to size, it was found that the animal had attained a greater weight of carcass, and came somewhat earlier to maturity, but these two points were not deemed an equivalent for the greater quantity of feed he consumed.

In Germany as well as in this country, wool is the primary and mutton the secondary object of the flock owner; and if the "*new breed of sheep*" are not profitable in that country, where mutton bears double the price it does here, it follows as a matter of course that they are much less profitable in this country, and cannot be commended to the favorable consideration of the American farmer.

H. D. GROVE.

Buskirk's Bridge, (*Hoosick*,) *January* 15*th*, 1842.

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THE PAULAR MERINO.

Dear Sir,—Your polite and esteemed favor of the 20th of October came safe to hand. Therein you request me to "say something in relation to Merino sheep, and illustrate with a drawing," &c. As for a full history of the Merino sheep, I am not enabled to give that requisite information which many other breeders can and probably will render you.

I have a Merino buck which I think cannot be surpassed in elegance of form by any of his species in this country. I have enclosed a good illustration of this sheep,* which is a pure descendant of the Paular stock. This, with three other varieties, were imported direct from Spain by William Jarvis, of Weathersfield, when on his return from that government as acting consul, about the year 1809. Consul Jarvis and other breeders, on trial, gave preference to the Paular stock as the best and most profitable sheep; surpassing the other fine wooled varieties in hardihood, producing the heaviest fleeces, best for milk, dropping large and stronger lambs, and the longest lived sheep, arriving at the age of fourteen years.

Some years after, the Saxon Merino were introduced here. At this period, fine wool sold at a very high price, and most breeders immediately mixed their flocks with the Saxony, being careful to obtain the finest wooled bucks, without much regard being paid to any other quality. Hence the Paular, Escurial, and other Spanish Merinos were so universally mixed with the Saxony, that scarce a full blood could be found. Soon we produced so much of the finer staple, the price came down nearly to a level with that of coarse wool, which was in more request. The Saxonys proved to be a gaunt, tender race, slender constitutioned, requiring much more care, bearing lighter fleeces, and with much difficulty their offspring were reared; the ewes, unless in high condition, afford but little milk, and the lambs when dropped were very tender. The great sticklers for the Saxony have dropped off one by one, and the general drift is now returning to heavy fleeces and coarser wool. The Paular stock are more readily sought and bear the largest prices. Saxony sheep have been slaughtered with a vengeance for a few years past. Hence the period may soon arrive when the adherents of fine wool will be better remunerated for their labor.

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* This portrait is omitted, the engraver having failed to make it in season.

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The Spanish Merino of the Paular variety, in my view, are the most profitable sheep that were ever bred in our State. They excel all others in hardihood; their carcass may be made to attain a good size; their long, tight wool, containing gum yolk or oil, serves as a coat to protect them in the winter months, and in severe storms water cannot well penetrate the fleece; their legs are generally short and well spread; they are broad in the chest, and always look full if well provided with food and water, even in the coldest days. It is admitted that no large flocks of sheep produce a quantity of wool excelling this breed. Their common average is from four to four and a half pounds of washed wool; it is not uncommon for them to arrive in high keep to five pounds. They are readily known by their dark color, which is produced by the greasy substance in the fleece extending to the ends of the wool, where it changes to a dark color; their hide is more loose, commonly with ruffled necks, and sometimes on their sides, faces broad, eyes wide set, ears thick and well clothed with short fur or hair; their lambs are generally produced with a coarse hairy appearance, which is succeeded with a coat of wool of unusual closeness and an even quality, with the exception of the flank, which is sometimes coarser.

The above cut represents a sheep of much better form than Merinos commonly are, with remarkable round turned hind parts, something like the best breeds of cattle; his length of body between the horns and tail is 3 feet 8 inches; depth of carcass near fore leg seventeen inches; with short stout legs, wooled to the hoofs. The 9th of November, then three years and six months old, he weighed 154 pounds; his first fleece weighed 6 pounds 7 ounces; second, 9 pounds 4 ounces; third, just 12 pounds—all washed wool. The fall previous, then a two year old, he served 135 ewes.

Vermont is well adapted for raising sheep. Comparing her size and population, she is ahead of the other States.

Domesticated sheep arrive to a greater state of perfection in temperate latitudes. Our several breeds or races of sheep have their respective admirers, each will probably thrive better than others on certain soils, situations and climate; but little attention has yet been paid to the improved, coarse, long or middling wooled varieties in this State.

The ewes of the breed which the cut represents, as also other fine wooled varieties, are not as prolific as some long or middle wooled breeds, which generally produce two at a birth.

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Much attention is now paid all over the world to this defenceless race of animals, both for the value of the fleece and carcass. "Not many years since, some of the nobility and gentlemen of distinction in England tried their agricultural ingenuity to raise the animal to that superlative degree of fatness which in all but the most robust appetites was calculated to excite disgust. In some instances, it was considered an exploit of transcendant merit to have carried the process so far that the fat of the animal, cut without any slope directly through the ribs, measured upwards of seven inches." The several varieties of sheep display a considerable sagacity in the selection of their food, and at the approach of storms they perceive their indications, and always retire to the spot which is best able to afford shelter.

It would lengthen out this article to too great a length to give you my mode of sheep husbandry; therefore permit me to close by subscribing myself,

Yours, very respectfully,

SOLOMON W. JEWETT.

Wrybridge, 17th January, 1842.

To Henry S. Randall, Esq.

Cor. Sec. of the N. Y. State Agricultural Soc.

MANAGEMENT OF SHEEP.

Lansing, Tompkins county, January 10th, 1842.

Dear Sir—I respectfully acknowledge the receipt of your circular, soliciting, in behalf of the Executive Committee of the New-York State Agricultural Society, information on various subjects, and of that character which would conduce to the advancement of the important interest of agriculture. You have my assurance, sir, that it is with great diffidence I undertake the execution of the task you have been pleased to assign me, proceeding from a conviction that others could have been selected far better qualified, from the possession of a greater amount of knowledge applicable to the subject. But inspired with much zeal in the great cause which we are mutually associated to promote, I am induced to make an effort to discharge this difficult duty, which I shall endeavor to fulfil to the best of my humble ability, with perfect plainness, and as much brevity as is compatible with the importance of the subjeet. Such is its magnitude, that a full discussion of it, accompanied with such illustrations as are necessary, would lead to

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greater length than my time will permit, or perhaps would be agreeable to yourself. Therefore, I am constrained to devote this essay only to details connected with *winter management of sheep;* and peradventure it be your pleasure that the subject, embracing summer management, on a future occasion should be continued by myself, your wishes will be cheerfully complied with. Impressed with the belief that *practical knowledge* is the great *desideratum*, it is purposed to confine myself almost wholly to the results of my own experience, what my eyes have seen and hands handled; indeed, that in which I take a *personal* part.

It will readily be acknowledged by all who have had the least experience in sheep husbandry, that winter is the season, in our latitude, when the skill of the sheep master is most severely tested; and that in the ratio of his attention or neglect is his profit or loss. This being so very obvious and well known, it is truly lamentable that the great majority of farmers are so slovenly, and it may be added inhuman, in the management and care of their flocks. The prominent points wherein errors most abound, are *neglect of protection*, *bad food* and *slovenly mode of feeding*, *permitting too many to herd together*, *neglect to separate the weak from the strong*, together with *many other* matters essential to success, which will be duly noticed in my progress. In advocating reform in these several particulars, I trust that none will charge me with presumption in setting up my own system as a correct standard; for if any part of my practice should be discovered as erroneous, let it be avoided, and then no possible harm can ensue.

The first important point which will be discussed, connected with the winter management of sheep, is PROTECTION, in support of which greater space will be required than is wished. The strong and inveterate prejudice entertained by thousands of farmers against this necessary matter in sheep economy is truly surprising; the grounds of which are, that it enervates the constitution and induces disease, and consequently deteriorates the quality and diminishes the quantity of the fleece. It will be my endeavor to prove that these conclusions are the very reverse of being true.

It is now many years since I embarked in sheep husbandry. My original purchase amounted to about 500, the half of which were from the then celebrated Merino flock of General Wadsworth, of Geneseo; and the residue the best common wooled sheep that I could procure.

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I commenced crossing with these, and steadily pursued the policy, even to the present time, of improving their quality by combining fineness and closeness of pile with as much regard to size and vigor of constitution as possible. A judicious course was adopted during the season of pasturage, by changing the flocks often from one field to another, feeding an abundance of hay and grain during winter, but heavy losses, varying from *nine to twelve per cent*—and let this be noted—would occur yearly, in despite of these efforts. It was not, however, until about the year '35, that my eyes were opened to the cause of this mortality, so sensibly felt in the purse, and revolting to humanity; *it was the necessity of protection.* Accordingly, I forthwith erected a number of barns with sheltering apartments—hereafter to be described—which proved an immediate remedy to these misfortunes. Since that event, on reference to my sheep records, it appears that my loss has not averaged, annually, to exceed *one and a half* per cent with regard to *number*, and if *comparative value* were the standard, not the *half of one* per cent, inasmuch as the deaths were confined to small and late lambs, and ewes inclined to age; whereas exposure cut down good as well as indifferent. But to make my limited loss, during the season of foddering, appear still more striking, I will state the fact, that last winter, out of two thousand, sixteen only died of the age of two years and upwards, several of which arose from casualties, and the residue that died were small lambs, ten from bad nursing, and the number about twenty. If this statement is contrasted with the per centage of loss before the resort to protection, it will readily dispel the *delusion* that it tends to enervate the constitution of sheep.

Although philosophy enters largely in support of the position, that sheltering of sheep in our vigorous climate, is a counteracting cause of disease, yet it is deemed necessary to state only a simple fact to overthrow the prejudice heretofore stated in reference to this point. When my flocks were exposed, the diseases to which they were subject were *scab, pelt-rot, scours* or purging, and an excessive discharge of *mucus* from the nose, and many died from apparently no other disease than sheer *poverty*. But since protection, no epidemic has prevailed, and disease of any kind is rare indeed, only occurring in individual cases. From this result, whatever may be the conclusion of some, it must at least be clear to every unprejudiced mind, that *warm shelters* are the *preventives of disease*, rather than the inducing cause.

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That protection will deterioate the quality of the fleece of which very many seem quite sure, nothing is more groundless; a mere delusion, and like every thing else of this character, originating in ignorance. This class of farmers say, that the Saxons, which yield a finer wool than any other variety, and possessing more delicate constitutions, live in a colder climate than ours, and hence conclude that exposure is necessary here, to prevent deterioration. That the climate of parts of Germany, where the pure Saxon abounds, is colder than this latitude, is very true; but the fact it appears is not known, that there protection is of the utmost necessity, and is most rigidly practised. Ignorance of this is the foundation of the fallacy which so generally prevails. It should be known, that all the fine wooled sheep, the descendants of which are now dispersed over half of christendom, originated in Spain, the climate of which is extremely temperate and equable; and if transported to a climate rigorous and inconstant, does not true philosophy teach us the necessity of adopting every means to secure to the animal a temperature as nearly corresponding to that which is natural to it? This will not be denied. The vegetable kingdom is, in many respects, analagous to the animal. The exotic plant of Asia, or Africa, must be surrounded by a temperature suited to its nature, otherwise it will either die, or loose some of its original properties and qualities. So it emphatically is with regard to animals by transferring them from their native climes. Although, with them, we may not at once destroy life, by non-conformity to the great law of nature, yet physical degeneracy in some form and premature death will certainly follow, sooner or later. *Nature* will do all in her power to preserve the principle of life, but must yield when insurmountable obstacles present themselves; and *the* one great obstacle with us is our climate; hence the necessity of protection to counteract its hardships. With the statement of one or two facts, I will close the discussion of this point, although it could be made stronger by other illustrations. The first clip shorn after my flocks were sheltered, their wool (stapled at the Middlesex manufactory, Lowell,) sold, sorted, three cents per lb. higher than the previous one, which arose not from selling the coarsest sheep during the interim, having parted with only about 50 of this class. And again, my wool, previous to that period, was harsh, weak in fiber, and to use a technical term, *dead in feeling;* since then, it has been distinguished by *life, softness and elasticity*, and great *strength of fibre*. This is always a natural and sure consequence, when sheep are kept in vigorous and healthy condition.

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The next point I shall notice is, *that protection will increase the weight of the fleece.* All farmers are aware that in fattening swine, or other stock, *mildness of temperature* is of paramount importance to hasten the process—and why? Because the *comfort* of the animal is thereby promoted. And it is asked, will not the same cause produce a similar result with the sheep when *its* comfort is thus consulted? Surely this will not be questioned. And who will deny that a sheep in good condition will shear a larger amount of wool than one in very ordinary flesh. But I will leave theory, and resort to stubborn facts spread before me in my sheep records, which will place the point in question beyond the cavil of the most sceptical. Before protection, the average yield of wool per head, was from 2 lb. 7 oz. to 2 lb. 9 oz.; and this too, when the flock partook more of the "old fashioned Merino" characteristics than at present, and provided the same means had been adopted to secure their health and condition as now, the produce would have exceeded 3 lbs.; of this there is not a doubt. The first clip that followed protection, the average per head was 2 lb. 10 oz.; the second 2 lb. 14 oz.; third 2 lb. 12¾ oz.; fourth 2 lb. 10½ oz.; and the last clip, 2 lb. 12 oz. The disparity in these averages is in part to be attributed to the difference in the number of yearlings, but mostly to the seasons, which in an unaccountable manner affect sometimes the weight of fleece generally. I shall not go into further particulars, but state that the aggregate increase of five clips, as above, amounts to seventeen hundred pounds, which at the prices sold, would cover the interest of the whole flock for five years, valuing them at one dollar and fifty cents per head! This is submitted as one only of the *solid* arguments in favor of the policy of protection. The legitimate conclusion to be drawn from the above premises, is, that sheep kept in *good condition* will yield a *larger quantity of wool—ergo*—the necessity of protection, as one of the means to promote this condition.

Increase of lambs, is another sure result of protection.

It is almost superfluous to tell an intelligent, practical farmer, or the animal physiologist, that in order to produce a healthy and vigorous offspring, the sire and dam should possess sound constitutions, and *good condition during pregnancy* is of the highest importance. By means of great attention to these important particulars, together with skillful crossing, may be ascribed all the improvements which have been made from time to time, in domestic animals. Unfortunately, the opposite of this has been too generally practised by our farmers, which will ac-

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count for the ill-shaped, puny, and diminutive race of animals scattered over our widely extended country. The splendid Durham, and all other breeds of like celebrity, will surely degenerate to the likeness of the *natives*, if subjected to this miserable course of management. It will never answer to permit any kind of stock to be reduced materially in flesh during half of the year, so as to require the residue to restore them. No, it is only by keeping up *good condition* the year round, and the nicest attention in selecting breeders, that size and beauty of form will be preserved; and by so doing, the offspring from generation to generation will retain the characteristics of its ancestors. It will be well to remember, *as we sow, we must reap;* or in other words, as we manage our stock, whether ill or well, so will be their offspring.

It has been made evident from what has already been stated, that before my flocks were protected, good condition could *not* be sustained, and these were the consequences.

The period I have chosen for my ewes to drop their lambs, is during the month of May. When this truly important time arrived, very many were sadly impoverished, and of course, feeble; and the consequence was, inability to fold without assistance. From this, it is very easy to conceive the nature of the offspring; small, puny and ill-constitutioned; and if they lived, from deficiency of nutriment, were comparatively a race of runts. It is almost needless to remark, from the character of such a progeny, that when winter came, it brought with it the terrors of death to many; and the pitiable objects might well have thought in the language of the infant's epitaph,

"Since we are so soon done for,
Wonder what we were begun for."

But since protection, the result has been very different. The ewes, at folding time, were healthy and strong; and it can be said with truth, being a personal business, I have not found thirty ewes, during the last five seasons, from debility, needing the assistance above mentioned. The lambs were alike healthy with the dams; the deaths comparatively nothing; and from the ewes possessing an abundance of nutriment, *owing to their good condition*, their offspring grew rapidly, and upon all this nature founded vigorous constitutions. Suffice it to say, that formerly the loss of lambs during winter was very large, so much so that it would be too mortifying to enter into particulars; but through the virtue of protection, with other improved means, the per cent of

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loss has been too trifling to detail. The legitimate deduction from what has been said in support of this last position, is the importance of preserving *good condition* with the *ewes*, which can only be *uniformly sustained* but by *sheltering*; and an *increased*, and more *vigorous* offspring will be the sure results.

Protection of *sheep* is also a *means* of *saving provender.*

Having based my other positions upon facts, the results of actual experiment, it is with much regret that I have none to offer of a decisive character to support the one in question; but I hope to produce conviction without them. Every practical farmer is well aware, that every description of stock will consume more food in severe, or moderately cold weather, than when it is otherwise. Now nature is always exerting herself with every thing, from man to the reptile, to promote its physical welfare for the preservation of the principle of life. Hence, when any animal is exposed, or subjected to extreme hardship, and our climate is the greatest natural one, it is prompted to partake of greater quantities of food in order to combat, or counteract it; therefore, inasmuch as sheep are subjected to greater hardships, from the severity of our winters, without protection than with it, the inference is legitimate that they will consume more provender with a view to their welfare. Without further speculations as to causes, I will take the liberty to cite the testimony of H. D. Grove, Esq. of Rensselaer co., known to very many of our agriculturists as a gentleman, profound in his knowledge of sheep husbandry in all its branches, acquired in his native country, Germany, where the subject, perhaps, is better understood than any part of the world. He says, "that protection is almost as necessary to the *health* and *good condition* of sheep, as food itself. Not only do sheep do much better, but it is a *saving* of *fodder* and *manure*." Other testimony could be adduced, but this, coming from so unquestionable a source, is deemed conclusive to establish the position. I will add, my opinion is, that the saving of hay is equivalent to one ton per hundred, to say nothing of grain, which I fed liberally before protection, but since have abandoned, except to my lambs.

A few additional remarks will close this branch of sheep management. What has been advanced in support of the policy of protection, it is apparent, has been with entire reference to pecuniary gain; but, I ask, does not *humanity* urge us to its adoption? If the sheep had not been tamed to man's submission, its natural instincts would

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never have brought it within regions like ours. No, the God of nature would have *protected* it by guiding its wandering steps to warmer climes. Therefore, since man has appropriated it to his use, does not the Great Dispenser of good require it of us that we should "deal kindly" towards it? It is indeed a religious obligation thus to do, and none but a barbarian would violate it. When the storm howls, and bitter cold urges around the "blazing hearth," let us *think* of the animal that Heaven has provided to furnish the material to clothe and warm us, and manifest our gratitude by endeavoring to make *its condition alike comfortable with ourselves.*

Having dwelt so long upon the subject of protection, which I fear not a few will think prolix, from want of a just appreciation of its benefits, it is now deemed necessary to speak of the kind of shelters of which I make use.

They consist of barns and framed hovels, the latter sided and covered with boards, instead of straw, which is common. Several of the barns are 30 feet by 20, with 14 feet posts; and others 26 by 20, with 15 feet posts—six feet of the length of the lower part of the last mentionhd being used for granaries. Owing to a decided antipathy to stacking of hay, some of the barns are filled with hay from the bottom, with the above kind of hovels adjoining; and with others, the protecting apartment is formed by resting poles upon the lower girts, which are elevated about 4½ feet from the ground, and upon these the hay rests. The first class mentioned are not large enough to hold a sufficiency of fodder for 100 sheep, which is the largest number I permit to herd together, and therefore the latter are preferable, being ample in size for every purpose, provided the hay is not of a coarse quality, and the winter an ordinary one. They all front the south, on which side are boards made to shove like bars; a space of six or eight, however, is always left open to permit the sheep going in or out at pleasure. This affords means of ventillation, and the animal is left to its own unerring instinct to determine when it is proper to enter, or otherwise. I here take the liberty to put forth an earnest protest against *close confinement* of sheep, verily believing that it tends to diminish their vigor and hardihood, deteriorates the quality of the wool, and induces disease. It is but rarely practical, however, in this State, and therefore further remarks are unessential. On a distant farm I have several barns constructed after the model of many of the German barns in Pennsylvania, standing on side hills, with underground apartments. The size of these

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is 45 by 36, and by means of a division wall, afford ample accommodation for 100 sheep each. On three sides of each apartment are fixed box racks, which are used only when the weather is severely cold or stormy; at such times the advantages of feeding under cover cannot be too highly appreciated. It is deemed idle to enter into a discussion of the relative merits of the class of barns described, or to suggest models of others; these matters being determined by taste, and the means which farmers can command for their superstructure. With regard to myself, I give a decided preference to those first described for the purposes used, inasmuch as they are from necessity scattered, therefore greater is the convenience and facility in securing hay; whereas, in regard to large and expensive barns, a greater distance of cartage is required, and in case of conflagration, the difference in loss is an essential item. If any should be disposed to follow my example, the situation is material, and should be on the *borders* of their meadows, if placed on them at all; otherwise, when the manure is hauled away in the spring, they will be badly poached.

Another point which greatly enhances the value of barns, when adapted to the above purposes, is, the *protection* also of *the fodder*. The waste of the surface of stacks, unthatched, is very considerable, setting aside the liability of half of it being damaged from unskilful building; and again, the saving of time in mowing in a barn; so that, embracing a period of five or eight years, the gain from these sources alone would reimburse the expense of a barn, as I have described. "The *inventor* of stacks," said an honest farmer to me, "ought to have been *gibbetted*; and a *little stretching* would be good for every one who follows his wasteful example." An explicit mode of conveying censure, truly, but the remedy for the evil is rather of too elevated a character to be generally feasible.

The subject leads me next to speak of the necessary appendages connected with the barns. And first, *yard fences*, which are constructed of posts and boards nailed lengthwise and *close*, the latter being very necessary to promote comfort, by excluding the wind when the sheep are feeding. It is well to remark, that the fences on the *west side* should be in an exact line with the barns. This is mentioned as a caution to others, for if not so adjusted, they may expect to have their yards filled occasionally with snow drifts; whereas, if as recommended, there will be none, as the drifting point is generally northwest, the snow striking that angle of the building, glances off by means of the

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fence, and the drift is formed beyond the precincts of the yard. When I am not provided with yards, use is made of what I term *wind-breakers*, which are made of poles laid about two feet apart, and stuffed with old or partly rotted straw. To form an adequate protection for the purpose above named for 100 sheep, they should extend about 20 feet, and be at least 4½ feet in height. It would be well to drive stakes into the ground at each extremity of the breakers, to prevent wind casting them, and thereby endangering the lives of the sheep. After the poles and cross-pins for them to rest on are provided, the time consumed in removing and replacing them, if necessary, is very short, and will amply compensate by the saving of fodder, *alone*, from otherwise being blown away by high winds. At the south extremity of the breakers, at right angles, pens are built, some 12 feet square, for the reception of the straw used for littering; those which are in the yards adjoin the east end of the barn.

Another great benefit of yards is the confinement of the flocks from wandering upon the meadows early in the spring, poaching them, and gnawing the young clover, which proves almost utterly destructive to it. The practice of permitting sheep to feed on meadows in the spring is too common, and should be at once wholly abolished. Still another very essential benefit of yards, is the increased quantity of manure that is made; and this confirms the remark of Mr. Grove, that protection of sheep is a means of "*saving manure.*" Before mine were sheltered, their manure was in a great measure lost to me; now I obtain from 40 to 50 very large loads from each place of shelter, and from under which it is of the greatest value, being possessed, when drawn, of all its *primitive strength.* The principal means I have adopted to make this large quantity, consists in *frequent littering* with straw, which is also of the highest importance in promoting the health of the sheep. The quantity used at each littering must be determined by the judgment of the sheep master, and should be as often as once a week on an average, through the season. With a view to convenience, the pens, already spoken of, are filled early in the winter; but before this, a large quantity of straw is drawn and strewn about the yards and sheltering apartments; by so doing, all the excrement is saved by intermixture with and absorption by the straw, instead of the ground, where the *cardinal virtues* of manure generally go, before ready for use, through improper management of the great mass of farmers.

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I now approach a branch of my subject somewhat embarrassing, from the diversity of opinion which prevails; namely, the *best* and most *economical food for sheep*, as well as *mode of feeding*.

The materials for fodder, which experience seems to have sanctioned in Europe as well as here, are hay—which is first in importance and general use—corn stalks, straw of various kinds, with oats, potatoes, and the turnips, as auxiliaries. To discuss the question at length with a view to determine which of the first three named is cheapest, would be perfectly idle, the matter being determined by latitude, and the adaptation of the soil to grow the largest amount of each at the least expense. For instance, corn in some sections being the most prolific crop, and easiest of culture, the fodder of this would perhaps have the preference—for there is nothing better for sheep; with another hay, and yet another straw of various kinds, with oats or roots; for without one or the other of the latter, in our latitude, sheep will not be sustained in flesh, much less thrive, on straw alone. I shall, therefore, leave this "vexed question," barely remarking that a *sufficiency* of the several kinds of food above named, *with protection*, will do away with all apprehension of sheep dying prematurely, and cause a profitable return to the farmer.

With a view to method, I will now proceed to detail, briefly, my winter management of lambs, which, with the fine wooled grades, require all the skill and attention of the shepherd in order to perfect success.

At the time of weaning, about the 25th of August, they are divided into flocks, varying in number, from 125 to 150; a larger number herding together, being deemed, from their wandering propensity, incompatible with their welfare. About the 1st of November, they are again yarded, and graded as to size and condition; and, also, the flocks reduced to about 100 each. This matter of grading should always be attended to by every farmer; for, although he has not more than fifty or one hundred lambs, there will always be a few, either from diminutive size or low condition, which require to be separated from the larger and stronger, and extra care bestowed upon them. The few grown sheep, which were put with each flock at the time of weaning, to tame and facilitate changing from pasture, are allowed to remain with them, for the purpose of learning them to approach the troughs and eat grain, which, at this time I commence feeding. Use is made of oats, and only about four quarts to the hundred, is given for several days; which

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should be scattered so thinly as to reach the whole length of the troughs. This quantity is not enlarged for a week or more, by which time all will have got a taste, and acquired a fondness for them; after this, the quantity is gradually increased to half a bushel, and this amount is continued to be fed, daily, to all the flocks, until about the first of January. If their condition will warrant, I then suspend feeding to one or two of the best flocks, and to these it is not resumed regularly, until the first of March. With the inferior flocks, there is no interruption, but receive daily their grain, up to the time they are turned to grass. When this period arrives, some twenty or more, as the case may be, of the most inferior, are selected and grained until the first of May, or perhaps later. This little attention will generally be found necessary in all large flocks. During the winter, should there be any among the better flocks, which are declining in flesh, they are immediately taken out, and put with the inferior, as these receive extra attention throughout the season. This last point should never be disregarded; and it is equally applicable to grown sheep. The best hay is always appropriated to the lambs; which is fed in *box racks*, a description of which will follow. When the weather is colder than usual, hay is given three times a day; the second feeding, however, is light, as at this time they are grained. The feeding troughs will be duly noticed hereafter.

A few remarks on the importance of greater care in the management of lambs, than is usual, are deemed necessary. I have heretofore said, as we manage our stock, whether ill or well, so will be their offspring; and I now say, most emphatically, *as we manage our lambs, so will be our sheep*. This axiom seems to be entirely overlooked and unheeded by the generality of farmers, and should at once be seriously considered. It is utterly in vain to expect full developments, thrift, and beauty of form, in any animal, where the first year of its existence has been suffered to pass in neglect. But the mass are too short sighted in their calculations. They sacrifice large *prospective* profits to small immediate gains, by selling all their grain of every kind, and permitting their young stock to take it rough and tumble, thinking, if they can only pass the first winter, with the breath of life remaining, that afterwards there will be no difficulty in making them of great excellence whenever the whim suits to attempt it! Never was there a greater error, never anything more absurd; and, I refer to the breeders of the Durham Short Horn, the Leicester and South Down sheep, for the correctness of my remarks. Ask them whether these truly magnificent

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breeds of animals are wholly so, *by nature*, or whether *art*, otherwise good management, has not greatly contributed to make them such? and their answers will be, "When young, we *protect* them from storms and cold; we find them an abundance of grain, or other nutritious food; and behold in that animal, of such ample size, vigorous constitution, and beautiful symmetrical proportions, the result, and the reward too, of our early attention and care."

I will only add, let REFORM in this matter, be inscribed on the banner of every farmer, and the humiliating necessity of dependence on foreigners for fine animals, will ere long cease. One word more, to show that my practice is agreeable to my preaching. The average number of lambs I have wintered for the last five years, has exceeded 500; and the average annual loss, has not amounted to 20; and these were not considered of any value, being very small, and of defective constitution; so, probably, from bad nursing.

About 300 or more of wethers, depending on the quantity of grain crops cultivated, are fed with wheat and oat straw, the latter mostly. In addition to the straw given three times a day, they receive about three pecks of cleaned oats to the hundred daily fed, of course in troughs; and also apples, occasionally, to answer as green food. I give the preference to oat straw, not perhaps because it is more nutritious than wheat straw, but because it is softer, and therefore more easily masticated. When the oat crop is secured, I use about two quarts of salt to each load; none need apprehend that this small quantity will blacken or injure in any way the grain. To the intelligent, the philosophy of this will readily appear, and it is hardly necessary to say that the straw is more eagerly devoured. The result from the above mode of feeding has with me been entirely successful, rarely losing a sheep, and never from poverty. If the soil of my farm was natural to the cultivation of roots, it is quite likely that I should feed them in preference to oats, knowing full well their value; but it is too tenacious to grow roots profitably. It is therefore that I use apples, the Romanite chiefly, for green food, and about a bushel to the hundred twice a week. It is useless to dwell on the virtues of apples when fed to swine or cattle in proper quantities; and I can give earnest testimony in favor of feeding them to sheep. It will surprise those who are ignorant to observe how ravenously sheep will devour them, and the keen appetite they manifest for the straw, after receiving their

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mess. The wethers fed in the above way should be full mouthed, or at all events in their third year.

Such is my system of management in regard to lambs, that afterwards graining is wholly unnecessary, except to a few of the yearling ewes, or rather when in their second year. This, in all *large* flocks, with the most perfect management, will be found necessary. As to a *regular hospital flock*, consisting of old sheep, and weak of all ages, I have not had any for several years; good management will always supersede this. But the secret, if secret it is, will hereafter be disclosed, being an item connected somewhat with summer management. Suffice it to say, the very few impoverished ones are turned in with the different flocks of lambs, and after sufficient recruiting are separated again.

To the residue of the ewes and wethers hay alone is fed, excepting once a week half a bushel of apples, and also two or three times in the course of the season pine or or hemlock boughs; the policy of feeding the last cannot at this late day be questioned. That *water is necessary for sheep* no one, unless totally devoid of humanity, will deny; therefore any remarks to enforce it are superfluous.

I have adverted to the *bad mode* of *feeding* practised by the great great majority of farmers, namely, of strewing the fodder on the ground, instead of using *racks*. The waste from this slovenly mode is truly shocking to the nerves of a thrifty farmer, and is one of the several causes on the calendar of mismanagement, why sheep generally are so emaciated in the spring. It is well known that no other domestic animal, save the dog, is endowed with so keen a sense of smell, and so nice in the selection of its food; and consequently, if its fodder is thrown on the ground in moist weather, very much will be rejected, and the sheep remain hungry. Can any animal thrive on food which it loathes? None can give an affirmative answer to this. The remedy, then, for the evil is racks. Mine are made of boards about three feet in height, two in width, and varying in length from 12 to 16 feet. The opening through which the sheep feed is about five inches for lambs, and seven inches for those older. All can readily conceive how these should be put together, therefore further description is unnecessary. There is yet another advantage in racks—the entire demolition of *aristocracy*, or of the strong lording it over the weak; for all stand up to their places on the broad principles of republican equality,

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each undisturbed by his neighbor. To see a flock of sheep feeding in this way is a sight "precious as rubies" to the humane and thrifty farmer.

There is yet another thing connected with economy in feeding; namely, *pens* for the reception of the hay when thrown down for foddering. Mine are three feet in height, and about five feet square. The construction is very simple, being strips of boards nailed to four pieces of scantling, which should be so close as to prevent sheep getting their heads between the slats. All know very well the waste by throwing fodder upon the ground, especially when wet, and all ought also to know that this will be obviated by means of pens. Aside from this, it will prevent the hay seed and dust from lodging in the wool; and if it be the chaff of clover, every experienced wool grower is aware how difficult at washing time it is to eradicate. It is hay seed and chaff which causes manufacturers very often to plead a reduction in price of fleece wool, and with good reason. Yet another advantage is, that if too much fodder is thrown down it remains in it, and saves time and trouble of pitching it back. I hope none will sneer on account of being thus particular with regard to small matters, for it is attention to small things which constitutes the perfect shepherd.

The kind of troughs of which I make use are of triangular shape, and made of boards. When the season for their use has expired they are put under cover, and by so doing will last many years. Every sheep master should be provided with troughs of some kind. The practice of feeding oats in the sheaf is accompanied by a shameful waste, much of the grain being shelled by the feet of the sheep, as well as dirtied, therefore causing more or less to be rejected. Economy dictates a separation of the straw and grain first, and feeding both separately—the one in racks, the other in troughs.

I have adverted to the bad policy of allowing too many sheep to herd together. This should be avoided at all seasons, and especially so in winter. There are but few who will controvert this, yet its violation is too common, which originates several of the epidemic diseases peculiar to sheep. One hundred is enough to herd together at any time, and a still smaller number will result advantageously to the master and the flock.

The above completes all that my practice and observation suggest in reference to *winter management of sheep*. I profess to be yet a

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learner, and will readily concede that I have offered nothing new to the intelligent and attentive shepherd. I have dwelt much upon the subject of protection, being fully aware of the vast aggregate loss of sheep annually in our State from its neglect; and also with a view to dissipate the delusion so current—that the finer grades of the Saxon variety are constitutionally too tender for our climate. My own flock is among the finest in the State, and yet it has appeared that, with proper management, there is no difficulty on the score of sufficient hardihood, and profitable results have been equally manifest. It is very true that *fine wool* cannot be successfully and profitably grown without protecting the animal that produces it, and it is equally as true, that no other variety will yield a profitable return of carcass and fleece without the same means and care, in our rigorous climate. It is my fervent desire that eventually we may be independent of the rest of the world, not only in the production of *every grade of wool*, but of the *manufactures thereof;* but this will not be so if farmers continue to neglect protection—one of the great means necessary to grow the material for our finest cloths. This is not the proper place to enter into a discussion of the question of comparative profits of the several varieties of sheep, yet I must be permitted to say to the growers of fine wool, *be not discouraged, our harvest will come.* This is not a selfish suggestion, but dictated by unqualified liberality; for if selfishness and deception predominated, my recommendation would be, go on destroying your fine flocks by butchering, or retrograding to the point you commenced, but thereby overstocking the country with *medium wool*, and consequently *reducing its value;* and thus proportionally *enhancing* the *price* of the *finest wool* by *diminishing* the *quantity.*

This essay I submit for your consideration, sir, not only with much diffidence, but from a sense of its little value also, with considerable reluctance. The brief time allotted, as well as many petty interruptions, while executing my task, will excuse the unfinished *garb* with which it is clothed; but the *body*, made of the facts presented, is *healthy* and *sound;* and that it may, therefore, be in a measure useful is the wish of, sir,

Your friend and obed't serv't,
L. A. MORRELL.

To H. S. RANDALL, Esq.,
Co. Sec. of the New-York State Agricultural Society.

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ON FENCES.

Shelburne, Vermont, Jan. 17th, 1842.

H. S. RANDALL, Esq.

Dear Sir—The subject upon which you desire a communication from me, does not seem to admit of a very long or formal essay.

"The best and most economical method of forming a durable fence," depends principally upon the materials used, and the location of the fence to be made, and the nature of the soil, upon which it rests.

In some respects, the wall fence is most durable; its materials are clearly so. But in low lands, and those affected by frost, repairs upon this description of fence, are disproportionably expensive. The same cause renders the board fence, in this country, precarious and insecure. On high ground, and where stone are abundant, and undesired for other purposes, the half-wall fence, answers an excellent purpose. This would be constructed in the usual manner, say, two and a half feet in breadth, and same in height, tapered a little at the top, as the foundation or wall, this mounted with three rails *above the wall*, inserted in posts resting upon flat stones two or three inches from the ground; the rails in no case, to rest upon or be buried in stone, and the posts always resting upon them, above the earth.

But, with us, however, the Virginia or cedar rail fence, is universally preferred to all others. In material, is less expensive, and occupies less time in construction, and is more readily and with less cost, kept in repair, and will out last the generation in which it is formed. The only peculiarities in its formation, which I deem it of any importance to notice, are the *caps*, and *upright stakes*. The caps are placed below the upper rail, and are formed of oak, twenty-two inches, perhaps, in length, and from five to seven in breadth, with orifices, say, three inches in diameter, through which the stakes pass, and of consequence, bind or support the structure.

This fence is formed upon a line, the corners being placed about two and a half feet from the centre, or rather from the straight line upon which the fence is formed.

The rails are purchased here, for about forty dollars per thousand; stakes from ten to fifteen dollars, and the caps are made for two or three cents.

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This then, is the fence which I consider to possess the qualities specified in your communication, its construction being too simple, to require further description.

Respectfully, your friend,

H. S. MORSE.

ON THE CULTURE OF HEMP.

Piermont, N. H. January 13, 1842.

HENRY S. RANDALL, ESQ.

Dear Sir—Your favor of Nov. 13th, came to hand in due time. Various pressing engagements have prevented my giving it that attention to which it is so justly entitled. My experience in the culture of hemp has been slight, and I regret my inability to do justice to the subject. Some twelve years since, the culture of hemp was proposed to the farmers in the valley of the Connecticut, and to others in different parts of New-England; seed was distributed, and individuals I believe, in some instances, associations of men engaged with much zeal in the work; but the project was very generally abandoned on the first trial. The causes of this failure were many, not the least of which, was probably the want of proper machinery for breaking and cleaning it for market. At the time of which I speak, I paid some attention to the subject; raised a quantity of seed, and, the second year sowed about five acres, broad-cast for the stone, on land in different degrees of fertility; the result, as to the growth, was highly satisfactory, proving conclusively, if proof were wanting, that our soil and climate are well adapted to the culture of this article. When sown on rich and well tilled land, the growth is very fine; no crop appears richer when standing, nor is there any article of culture, in my knowledge of which a heavier or more abundant crop can be produced. It is however, an exhausting crop; our best lands will not produce a good growth for several years in succession, without expensive manuring. And when it is considered that New-England has not for many years past, raised bread stuffs sufficient for the supply of her own population. A fact, however, strange it may seem, in a section of country, so far agricultural as we are, yet, which I believe is nevertheless true. It may well be doubted, whether it would be good policy for us, to grow hemp to any considerable extent.

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Another consideration is, the scarcity and high price of labor among us. A great proportion of our young men on arriving at the age of manhood, push their fortunes in the west, and take their farms on the rich bottom lands of the Mississippi, and its tributaries, leaving the agricultural portions of New-England, with scarcely help sufficient to cultivate their lands in the ordinary way. Whereas, should a new article of culture be introduced, requiring as this does, the use of our best lands, and one, also, which makes no return to the soil, as a manure, more labor will be required, and greater efforts necessary to sustain our population, and prevent the deterioration of our lands. Not so in the west. The alluvial lands in the western States appear to me to afford the most encouraging prospect for the culture of hemp. The prairies and most of the bottom lands in all the western States, would undoubtedly produce this crop in great perfection for many successive years; and as all kinds of grain usually cultivated, can be there raised to an almost unlimited extent, with little labor. It seems necessary that a part of their lands should be applied to the production of some other crop, which may be of convenient transportation and produce a good return; and I have supposed that hemp would answer these purposes better than any other crop, for several years to come. It is here generally understood that a cool climate is preferable in the culture of this article, giving greater thickness and strength of fibre, than that grown in the southern or warm climate. Hence the section of country north of the Ohio river, I suppose more favorable to this culture, than any other portion of the Union. More value may be produced from a crop of hemp on a given number of acres than from any crop of grain, and should the farmers of the west fail of providing themselves with suitable machinery, and be compelled to break and dress it by hand labor, the additional value above their grain crops, will more than compensate them.

The seed of hemp is a valuable article for oil; it makes a durable and excellent substitute for linseed oil in painting. I have written in haste, and do not suppose that I have given any new views of the subject.

Very respectfully,

JOSEPH SAWYER.

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ITALIAN WHEAT—ITS INTRODUCTION AND CULTURE.

HENRY S. RANDALL, Esqr.

Corresponding Secretary New-York State Agricultural Society.

Dear Sir—I have received the communication which you addressed to me last month, and employ my first leisure in answering your inquiries.

The Italian spring wheat, which has obtained a well deserved celebrity in this country, was imported from Florence, in Italy, in 1831, by Signor J. B. Carbonai, of that city. His father was a wealthy merchant of Florence, and Signor C. was bred to that profession, but marrying against his father's will, was dneounced and disinherited. Smarting under the severity and reproaches of an incensed parent, he resolved to emigrate to America, and become an agriculturist. Acting upon this impulse, he purchased a variety of seeds, including a tierce of choice spring wheat, and embarked for New-York; at which place he arrived in 1831, bringing with him his family, priest, household furniture, seeds, and an invoice of Leghorn hats, in which article he had invested the most of his property. Unfortunately for him, "a change had come over" the world of fashion, and Leghorn hats were now repudiated, and consequently of little value. After closing his sales, he found that his funds were barely sufficient to pay his bills, and probable expenses in removing to the country; he heard of the town of Florence in Oneida county. The *name* brought with it all the endearing associations of *home*, and he determined to seek it without delay; made a contract for a farm, and removed to it forthwith. Once there, his delusion vanished, and in its stead he found the sober reality of a cold hard forbidding soil, and a region of frost and snow. He had every thing to learn, even the rudiments of agriculture, and in every thing was destined to meet with disaster and disappointment, for lack of that forecast and experience which would doubtless have averted it.

At the time Signor C. passed through this place on his way to Florence, the *tierce of wheat* was left at a canal forwarding house in pledge for charges. This proved a fortunate circumstance for the agricultural interest of the country, as it prevented its ultimate loss; he would probably have sown it, if at all, with as little science and the same improvidence as he sowed his Indian corn—broad-cast, in June; or as he evinced in transplanting cabbages and onions, late in August. Some

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months after it was left here, I saw a sample from the tierce; was struck with its beauty; and when I saw the Signor, learned that he was so destitute of money and means, as to have now given up his intention of sowing it; and had decided to grind and eat it, as soon as he could get possession of it. I offered at once to supply him with flour, pay the charges, and take the wheat. He assented, and thus it was saved. The result has been auspicious, and many thousands are this day enjoying the luxury of good wheat bread, raised from their worn out steril lands, which scarcely brought them five bushels of rye per acre; and from which they had not indulged a hope, that they should ever again reap a crop of wheat. The Italian spring wheat possesses a property which no other variety can claim—that of growing well, and yielding a fair crop, upon land so poor, that none else will grow upon it. On such land 12 to 15 bushels per acre has been grown; on good land 30, and on the best wheat land it has reached 45, 50, and even more. The original weighed 63 lbs; to the bushel, and was first sown in 1832. I have seen much since that weighed 62 lbs. It has a bright lemon colored straw, and is a beautiful crop in its appearance when growing and ripening; the kernel has a thin skin of a bright brown, and from the same quantity will yield more flour than any wheat raised in this section of the country. It makes excellent bread, moist and sweet, and is said to have more of gluten than other wheat. The manufacturers of maccaroni, in Italy, prefer it on that account. When intended for sowing, it should not be cleaned in a smut machine, as the chit is easily destroyed by friction; nor will it bear the action of brine as long as other wheat, by reason of its very thin cuticle. It is important to change seed wheat frequently, and better yet, if from a distance. The last three years have been unpropitious at the critical period of its "being in the milk"; hot and damp or wet weather at that time, *forces* it too rapidly, the juices rush up the stalk faster than the head can receive, burst the scarf skin, ooze out, and turn brown; the stalk is then said to be "struck with rust," the consequence is that the kernel is not filled with inspissated juice, and on drying, is light and shrivelled. Straw has been used with much benefit by spreading it on the surface of the field, after the wheat is sown; it protects from the severe frosts in April, and from the drought in May and June; and by keeping the direct rays of the sun from the soil in August, the rush of juices is retarded when the hot and wet weather occurs. Very rich land is not the best for this wheat, as the straw grows too rank, and falls with the first heavy rain and hard wind. A field having a northern exposure

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has been found to be the safest, and to rust the least. Brining and liming seed wheat is useful to its growth, and a preventative generally of smut. Quick lime sown while the dew is on the head of stalk, destroys the weevil.

You may feel an interest to learn the subsequent history of Signor Carbonai. After all was "eat up," he removed in destitute circumstances to New-York city, opened a school as teacher of the Italian language; had fairly got under way with a fine class, when the cholera broke out, and broke up his school. Heart broken, unable to get employ, and now wholly destitute, he took ship for Havanna, intending, if successful, to send for his family; this it is supposed he ultimately did, but nothing is known here with any certainty of his fate. He was a gentlemanly and worthy man, of good intellect and fine feelings, and deserved success, and prosperity; this an apparently hard destiny has denied him.

I am, sir, very respectfully,
Your obedient servant,
JAY HATHEWAY.

Rome, Oneida County, N. Y. Dec. 1841.

ESSAY ON POULTRY, &c.

By C. N. BEMENT.

The profits of the farmer, are made up of items. Therefore, despise not the profits of the poultry yard. "Take care of the cents, and the dollars will take care of themselves," is an old maxim, and so far as the farmer's profits are concerned, I think a true one.

The object of rearing poultry and eggs, for market, may appear to some, but a small concern; but a glance at the late Agricultural census, would surprise many who had paid little or no attention to the subject, or not been in the habit of reflecting on the various items that go to swell our agricultural prosperity.

In the advancing prospects of society, a peculiar interest is, at the present time, excited, and is calculated to advance the interests of rural economy.

He who adds, says Boswell, to the productiveness of any object of nature, which can add a unit to the sum of human subsistence, and

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which can render that available for the purpose, which was wasted or useless before, must be deemed a benefactor to his species. In this light, even the rearing of a few poultry, may be viewed; for by them, much of the refuse of the kitchen may again appear on the table, in a new and a better form; and, if to them can be added the rabbit, the pig, and the cow, there is no necessity that anything should be lost or thrown away.

For some years past, there has been a great demand for poultry and eggs, at high prices, and it seems likely to continue; for the causes that produced it, are still in operation, and are likely to continue and increase. The increase of travel, by means of steamboats and rail-roads in this country has produced an increasing demand for all the luxuries of the table, beyond the current means of supply at moderate prices; it therefore, becomes the interest of farmers, to devote a little attention to producing those articles which sell readily and at a good price; particularly as the labor connected with the rearing of poultry, if labor it can be called, is very light, and can be performed by the younger members of the family, without infringing on the time devoted to the more important labor of the farm. It is an agreeable relaxation, if engaged in, in a right spirit, and has connected with it, many pleasant avocations.

On most farms, very little attention is paid to the rearing or breeding poultry; and, but very indifferent accommodations for them, as the rearing of a greater number than can subsist by picking up waste or refuse grain, or what might escape the pigs and be lost, is considered by many as unprofitable; and any cold apartment with ill-contrived places for nests, and dirty roosting places, is generally considered all that is necessary.

Hens, in order to supply eggs, require, as a condition, that they be supplied with a portion of animal and vegetable food, as well as that of grain.

The question has been often asked, why hens cannot be made to lay as well in the winter as in the summer? They can to a certain extent; but, then, they must be well provided for, with a warm, clean and comfortable apartments, plenty of food, in all its variety, consisting of grain, vegetable and animal substances, gravel, lime, ashes or dry sand to roll in, and pure water.

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It is a well known fact, that from November to February, (the very time we want eggs the most,) they are to many a bill of expense, without any profit. To promote fecundity, and great laying in the hen, it is necessary that they be well fed on grain, boiled potatoes given to them warm, and occasionally animal food. In the summer, they get their supply of animal food, in the form of worms and insects, when suffered to run at large, unless their number is so great as to consume, beyond the supply, within roving distance. I found it quite advantageous in the summer, to open my gates occasionally, and give my fowls a run in the garden and field adjoining their yard, for a few hours in the day, when grasshoppers and other insects were plenty. I had two objects in view; one, to benefit the fowls, the other, to destroy the insects. It will be found, that the fecundity of the hen will be increased or diminished, according to the supply of animal food furnished.

Hens, moult and cast their feathers once every year, which generally commences in August, and lasts until late in November. It is the approach, the duration, and the consequences of this period, which puts a stop to their laying. It is a critical time for all birds. All the period which it lasts, even to the time that the last feathers are replaced by new ones, till these are full grown, the wasting of the nutritive juices, prepared from the blood for the very purpose of promoting this growth, is considerable; and hence, it is no wonder, there should not remain enough in the body of the hen to cause her eggs to grow.

Old hens cannot always be depended on for eggs in winter, they scarcely being in full feather before the last of December; and then, probably, may not begin to lay till March or April, producing not more than twenty or thirty eggs; and this is probably the cause of the disappointment of those who have supplied themselves at the markets for their stock to commence with, and get but few or no eggs. As pullets do not moult the first year, they commence laying before the older hens, and by attending to the period of hatching, eggs may be procured during the year. An early brrood of chickens, therefore, by being carefully sheltered from the cold and wet, and fed once a day on boiled potatoes, *warm*, with plenty of grain in the feeding hoppers, and occasionally a little animal food, will begin to lay in the fall, or early in the winter.

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"When," says Bosc, "it is wished to have eggs during the cold season, even in the dead of winter, it is necesssary to make the fowls roost over an oven, in a stable, or to erect a stove in the poultry house on purpose. By such methods the farmers of Auge have chickens fit for the table in the month of April, a period when they are only beginning to be hatched on the farms around Paris, although farther to the south. It would be desirable to have stoves more common in poultry-houses near the cities, where luxury grudges no expense for the convenience of having fresh eggs.

The Irish peasantry allow their poultry to occupy at night a corner of their cabin, along with the cow, the pig and the family, and they frequently lay very early in consequence of the warmth of their night quarters; andthere can be no doubt that this is the chief secret for having new laid eggs in winter, paying at the same time due attenton to protect the hens from wet, and to have them young, or at least early at moulting.

One thing more is necessary in order to be successful in obtaining plenty of eggs, and that is a good attendance of cocks, especially in the cold season; and it is also especially to be observed, that a cock whilst moulting is generally useless. In the winter a cock to every five or six hens is necessary.

With respect to fecundity, some hens will lay only one egg in three days, some every other day. Buffon says, a hen well fed and attended will produce upwards of one hundred and fifty eggs a year, besides hatching two broods of chickens. Some half bred game hens begin to lay as soon as their chickens are three weeks old; the consequence of high keep and good attendance of the cocks.

To show the importance of our paying more attention to this, though humble, branch of the farmer's business, and that however small it may appear to some, a knowledge of the amount consumed in some cities would astonish them.

The annual consumption of poultry and small game in the city of Paris, usually amounts to twenty-two millions of pounds.

The importation of eggs from Ireland in 1837, to Liverpool and Bristol alone, amounted in value to $250,000. The importation from France the same year was probably greater.

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"It appears," says McCulloch, "from official statements, that the eggs imported from France (into England) amounts to above 60,000,000 a year; and supposing them to cost on an average four pence per dozen, it follows that the people of the metropolis of Brighton, (for it is to that place they are most all imported,) pay £23,000 a year for eggs; and suppose that the freight, importer's and retailer's profit, duty, &c. raise their price to the consumer to ten pence per dozen, their total cost would be £213,000. The duty in 1839 amounted to £22,189.

It was stated in a late paper that one person in Rhode-Island, took to market, in one season, over 60,000 eggs; and that over 1000 was consumed daily at the Astor-House in New-York.

I am informed large quantities of eggs have found their way to New-York from Ohio by means of the canal; we may, perhaps, soon expect them from Illinois, Indiana and the upper Mississippi.

In England there are exhibitions and prizes awarded for the best poultry. At these exhibitions noblemen of the highest rank become competitors. Earl Spencer, in 1837, carried the highest prize for a turkey, which weighed 20½ lbs. One capon was exhibited that weighed 7 lbs. 14 oz., one pullet 6 lbs. 13 ounces.

Here, in America, without the aid and stimulous of exhibitions and prizes, turkies have been made to weigh as much, if not more; and a pair of chickens was exhibited in Philadelphia, in April last, that weighed, when dressed, 19¼ lbs.; and I was told by a gentleman at Haddonfield, New-Jersey, and I have no reason to doubt his word, from the appearance of his fowls, that he had fed and killed one that weighed 11 lbs. They were of the black variety, called by some the "Java fowl." Some of the eggs of these fowls were shewn me that weighed six to the pound.

Poultry are considered by some as a very insignificant part of live stock on a farm; still they should not be altogether neglected, for there are very few persons who do not like a *fresh laid egg*, or a *fine pullet*, and these are some of the fine things which happily can be had in good perfection by the farmer, with very little trouble or expense. Eggs, whether boiled or fried, raw or roasted, or made into custards, agree with most palates, and fried with ham, or made into omelets, form a repast within the reach of all, and to be despised by none.

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On small farms, near villages and cities, the breeding and rearing of turkies, ducks and chickens, and in some situations the keeping of geese is found profitable.

"Eggs," says Low, "are an extensive product of common poultry." Mowbray, in his work on poultry, states, that from five Poland hens he obtained in eleven months, 503 eggs, weighing, on an average, of one ounce and five drachms each—50¼ pounds.

"A dozen hens," says a writer in the Conn. Courant, "properly attended to, will furnish a family with more than 2000 eggs in a year, and 100 chickens, for fall and winter use."

In 1840 my hens commenced laying on the 7th of February, and between that period and the 15th of August, when they commenced moulting, we obtained 2655 eggs from 60 hens; when the year previous, from 100 hens which were suffered to run at large, we did not get but a few over 1000. Last year they commenced laying the 8th of January, and continued laying until the 27th of September, when they ceased utterly, but commenced again on the 13th of October, and continued until the 18th of Nov. They commenced again on the 1st of December, and up to the first of January produced over 4000. This is conclusive evidence of the importance of confining our fowls, so that the eggs can be readily obtained, and no time lost, in "looking for hen's nests."

A friend who resides in a neighboring city, and keeps between thirty and forty hens, informs me that he obtained eggs from his hens throughout the year; that is, there was not a single day in which he did not obtain some. This he accounted for by having very early chickens, as when the old ones ceased laying, to moult, the young pullets commenced. His yard is completely protected by high fences and buildings on the north and west, and receiving the full influence of the sun from the south. He has low sheds around the yard to protect them from storms in the day, and a warm room in the loft of his wood house, which is lathed and plastered, to protect them from vermin, and keep them warm in the night.

A neighbor erected a poultry house, which he filled in with brick, says his hens never ceased, but continued to lay during the fall and winter, and that he obtained 37 cents per dozen for his eggs.

Mr. Stimson, of Galway, a few years since, corrected the business of rearing poultry to the useful purpose of protecting his garden from

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the depredations of the numerous tribes of insects which so frequently render abortive the best exertions of the gardener. His method is simply this: a sufficient number of coops, (see cut) are constructed, and are placed in different parts of the garden, and the hens, with their broods, are put into these coops; the chickens finding no restraint on their freedom, roam over the garden, and devour every fly, bug, or insect which may fall in their way. There is one objection, however, to this, which I found, by experience, and that is, if they are left in the garden too long they become so attached that it is difficult to keep them out when grown up. I would therefore recommend removing them to the poultry yards as soon as they get in feather.

"Poultry, of a middling size," says a writer in the Southern Agriculturalist, "and of a black color, are the best. Fowls that are too fat, do not lay abundantly. They should be fed early in the morning and about sunset. Regularity in feeding, both in time and place, is of great importance."

I prefer, however, to keep food constantly before them in feeding boxes, where they can get it when they want it. Besides, I consider it more economical. When fowls have free access to their feed they will not consume any more than when fed at stated times. Clear water is essential to their health, and a preventive to the pip. The poultry house should be often cleased and purified with a solution of chloride of lime. Straw in the nest should be changed often. Hay is still better than straw, and not so liable to breed vermin. Tobacco stems have been found useful to put in the bottom of the nests, especially when sitting. Ashes and sand has also been recommended by some to be put in the bottom of the nests.

Whether fowls are suffered to go at large, or are confined, there should be a poultry house and yard where they may be regularly fed. In selecting a situation for a poultry house and yard, I would advise by all means to have them on the south side of buildings, or the south or southeast side of a hill, so that one side of the wall may be set against the hill, and if of stone, to be laid in mortar, which will add much to the warmth of the room. If the buildings are of wood, they should be filled in with brick, or lath and plastered. Brick are preferable as they harbor less vermin.

To unite all the advantages, desirable in the poultry yard, it should neither be wet or exposed to cold winds. There should, if possible,

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be running water in the yard, and under cover should be placed ashes and dry sand, where they may indulge their natural propensity of rolling and basking or bathing themselves; and it should be rendered so attractive to the hens as to induce them not to wander off or lay in any chance place away from it. Gravel, broken shells, crushed bones, and old lime morter should be placed within their reach.

The extent of the buildings and yard should be proportioned to the number of fowls intended to be kept, and it is better to be too small than too large, particularly in winter for the natural benefit of imparting heat. There is no fear of engendering infectious diseases by too much crowding; in fact it is found that when fowls are kept apart, they are not so prolific; and the more they are crowded the greater their ardor increases for laying even in winter.

Having settled all preliminaries, I will now give several plans for houses, &c. some of which would be rather costly, while others could be erected at trifling expense, and within the reach of every one.

(Figure of a Poultry House.)

The above exhibits the front and elevation of rather an extensive and costly establishment, but would be very convenient and would add very much to embellishing the premises. The buildings at the ends are intended for laying, hatching and roosting apartments. The cupolas on the tops, finished with blinds, for the purpose of ventilation as well as ornament. On the bottom of the cupolas and inside of the building is a door, hung on hings, with a cord attached, so that it may be closed or opened at pleasure. The gable ends may be turned to the south, in which dove-cotes may be framed, or they may be made in the roof as in the figure.

The long building with windows in front connecting the two extreme ones, is intended for a *chicken saloon*, or *walk*, for exercise in the win-

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ter. as well as for feeding, basking, &c. being made warm by filling in with brick, or lathed and plastered, and the roof should be thatched with straw. The front to be ten feet high; roof sloping to the north. The windows are intended to admit heat as well as light, or the windows may be omitted, and the front finished in the form of a shed. It will be found very convenient for feeding and watering as well as for gravel, ashes, lime and sand. Boxes may also be placed there for laying and hatching. By partitioning it off, two varieties of fowls may be kept separate, or one side may be appropriated for turkies and guinea-hens, and the other to the galinaceous tribe. Doors from each should open into the yard, which should be of considerable size, as room and space in the air is necessary for their health, when they are not permitted the range of the barn-yard. The yard should be a little sloping, that it may be dry, as moisture is a most destructive enemy to poultry. It should be enclosed by a fence at least seven feet high, with long sharp pickets, and the timber on which the pickets are nailed, unless some distance below the top, should be on the outside, to prevent the fowls perching on them, as they seldom fly over a fence without alighting. When first confined they will show some impatience, which soon wears away, if every thing is made agreeable to them. It may, however, be necessary to clip the wings of some, when first confined, particularly if taken from the barn-yard where they have always had their liberty. My fowls are so attached to the yard that they are unwilling to leave it, even when the gates are open.

The buildings at the ends should be thirteen feet square, and thirteen feet posts. I name this size, as there would be no waste of timber, being just the length of the boards and joists. If not too near the dwelling house, so there would be no danger of fire from sparks, I would recommend to have the roof thatched with straw, as being much warmer in winter and cooler in the summer, and when well done, it forms a light and durable roof, and will last for twenty years. It should, however, be made very sloping, in order to carry off the water more readily. A hole one foot in diameter, with a door hung on hinges at the top, which may be held open by means of a cord, should be made in each apartment, for the fowls to pass in and out, and to confine them when necessary. There should be no floor to prevent the fowls from coming to the earth; and the litter should be often removed, and the bottom sprinkled with lime at least once in each week.

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There should be a floor or gallery in the second story, three feet wide on three sides, for the purpose of getting at the nests. The roosts should commence at the top and slope downwards, at an angle of about forty-five degrees, like a ladder, to the floor of the gallery, and immediately over the space in the centre. In the side where there is no floor in the gallery, is to be a flight of stairs for the accommodation of those who collect the eggs, &c. It is recommended to have the spars or cross pieces for roosting of sassafras, two inches in diameter, with the bark on, which is said to be a protection from vermin. No flying is necessary in this form of a roost, as the birds ascend and descend by steps. The spars should be placed one foot apart horizontally for the hens, and eighteen inches for turkeys, so that they may not incommode one another by their droppings.

I have tried ranges of boxes, like pigeon holes, erected on two sides of the gallery, for nests, but experience, the best teacher, proved to me it was erroneous, especially when hatching, for when the setting hen left her nest to procure her food, drink, &c. one of the other hens would espy the eggs and pop in and lay her egg. In the mean time, the other hen would return and find her nest occupied, and finding it no easy matter to eject the intruder, as possession is said to be nine points of law, would seek the first nest she could find with eggs and settle herself there. The consequence was, the other hen, after depositing her egg, would leave the nest, and the eggs would be left to cool and spoil. There is another difficulty; if vermin should make their appearance, there is no way of getting at them or cleaning the nests; to remedy this, I had separate boxes made and hung around the sides and placed in the corners, which can be removed when hatching, or cleaned and freed from vermin when necessary.

To gratify the hen's organ of secretiveness, the apartments must not be too light, and the access to the nests so constructed that she may steal quietly there unobserved.

Another very simple and cheap poultry house, I find in "Boswell's Poultry Yard," a late publication, and beg the serious attention of those who consider the foregoing plan too expensive, coming home directly to the hearths of the poor, and making a strong appeal to the hearts of the wealthy.

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At the gable end of the house, and as near as possible to the opposite side of the kitchen fire, at which part and for this purpose the wall might be made thinner, perhaps only one brick in bed or brick on end, to the height of six or eight feet, a poultry house, in the form of a lean-to, might be erected, and at a trifling expense. Its size, form and fitting up, must depend principally upon the judgment, taste and convenience of the breeder; but, "in such a place," says Boswell, "we ourselves have kept a cock and six or eight hens, with a few ducks, which throve and produced admirably." If it is not advisable to allow them to roam at large, a fence can easily be made, completely to enclose this poultry house. The enclosure does not require to be high; for if the pickets are made long and sharp, the fowls seldom attempt to overpass. In this way, even in unfavorable circumstances, a very perfect and profitable poultry establishment may on a small scale be erected. In rearing this simple shed, we take it for granted that the situation is completely dry; but when it is not, proper care should be taken to render it so, either by draining, sloping or elevating.

Perhaps the best hen-house locality for securing eggs in winter, which can be suggested to the frugal and judicious, would be above the kitchen, where they would be secured in a proper degree of dryness and warmth, which in winter, especially with the spring hatched pullets, will tell well in the production of eggs. Besides, the fowls are here free from many dangers, and safe from many enemies, to which they are generally exposed in a lower and more open situation. The weasel, skunk and fox may prowl around in vain; and what is of more importance still, he will avoid a danger to which we have, more than to all others put together, been exposed, and by which we have been annoyed and suffered more—and that is the midnight pilferer, who knows so well how to rob the hen-roost mercilessly, in secrecy and silence, and who does not know the value of a good fowl even after it is stolen. Some may object to this method on account of filth, but it is presumed that it will be kept perfectly clean.

In hatching of poultry, as in most other things, nature is the best guide. A hen is generally ill to please in the choice of her nest, and should always have a variety among which to choose. Sometimes many will lay in the same nest, and frequently two or more at the same time, and generally prefer the nest that contains the most eggs, and will always give the preference where at least there is one; hence the necessity of always leaving one in the nest as a nest egg. The hen and

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duck, if left to themselves, find some dry, warm, sandy hedge or bank, in which to deposite their eggs, forming their nest of moss, leaves or dry grass. In this way the warmth is retained in the nest for the few moments she devotes to her hurried and scanty meal. It is a good mode to put in the bottom of the nests a sufficient quantity of dry sand and grass, moss, or cut straw. Wood ashes or tobacco stems has been recommended by some, as they produce the effect of destroying or preventing vermin, by which they are apt to be infested at that time.

The eggs should be taken from the nests every afternoon when no more may be expected to be laid; for if left in the nest, the heat of the hens, when laying the next day, will tend to corrupt them.

For hatching, and to have the eggs productive, they must be fresh, and must not be exposed to noxious effluvia or moisture. Those intended for incubation should always be gathered with more care than if they were merely to be employed for aliment. They should be large in size, the produce of the largest and most beautiful fowls. All very small eggs, which have generally no yolk, and those which are ill-shaped, or of equal thickness at both ends, must be rejected. The latter is the usual shape of such eggs as have double yolks, which, though good for cooking, are not so for hatching; for if they prove reproductive, the produce are generally monsters with two heads, four legs, and the like. Instances have occurred, but rarely, when two and even three chickens were hatched from the same egg.

It is even possible to ascertain from the appearance of the egg, whether the progeny is to be a male or a female. Formerly, pointed eggs were known to be cocks, and round ones hens, but no more certain signs as yet has been discovered.

The number of eggs to be set under a hen must vary according to her size, and to the temperature of the weather. It is common to put odd numbers, as nine, eleven, and thirteen, so that they will form a circle around the odd one in the centre; but some times the hen may lay more eggs, or others lay in the same nest; eggs, therefore, should all be marked, and if fresh ones should be laid, they should be removed, as they would be too late in hatching.

It has generally been found, that hens which are the best layers are the worst sitters. Those which I have found best adapted for that pur-

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pose, have short legs, a broad body, large wings, well furnished with feathers, their nails and spurs not too long or sharp.

Incubation lasts twenty-one days, when the chicken is excluded from the shell. The day after hatching chickens do not want to eat, and should be left in the nest. The next day they may be put into a box, with high sides, or under a coop, with soft straw or hay, and fed as on the following days, with crumbs of bread either soaked in wine to strengthen them, or in milk to give them an appetite, and occasionally the yolks of eggs boiled hard, may be given them. Very clear water must be placed near them fresh every day; and now and then they may have some chopped leeks or chives. After having kept them cooped for five or six days, they may be allowed a little exercise in the sun towards the middle of the day, and fed with boiled barley, mixed with curds, and a few pot-herbs, chopped up. Indian meal boiled in milk is found very wholesome and nutritive. When moistened with water, and fed raw, it is apt to cause them to scour. As they advance, grits or course ground corn is very well liked by them, and is wholesome.

At the end of ten or fifteen days, the hen may be allowed to lead her little ones into the poultry yard; but as she is then able to manage from twenty-five to thirty, those of another hen may be added to hers, and the other hen may be put back again to hatch or lay.

As soon as the hen becomes a mother, her whole character is changed. All her former feelings and habits become absorbed in unceasing maternal solicitude. She turns out to be frugal, generous, sober, reserved, courageous, and intrepid. She assumes, indeed, all the qualities of the cock, and even carries them to a higher degree of perfection. When we see her come into the poultry yard, surrounded by her little ones, for the first time, it seems as if she was proud of her new dignity, and takes a great pleasure in performing her duty. Her eyes are lively, animated, and constantly on the alert; her looks are so quick and rapid that she could take in every object at one glance; and she appears to discover at once the smallest seed on the ground, which she points out to her young ones; and in the air, if she discovers the bird of prey, she dreads for their sake, and giving them warning by a peculiar cry, she induces them immediately to hide themselves.

Incessantly taken up with their welfare, she excites them to follow her and to eat; she picks them food; she scratches the ground in

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search of worms which she gives up to them; she stoops now and then; she squats down, opens her wings, and invites her tender brood to come and gather around and warm themselves beneath her. She continues to bestow these cares on them until they are quite feathered, when they are fit to shift for themselves.

It appears to me from my experience, to be the best method to feed fowls an abundance of nourishing and substantial food. Experience also teaches me it is better to give animals of all descriptions a full allowance of food from their birth to their maturity; and the same rule applies to fowls as to animals. I have found all kinds of grain suitable for them; although some contend that buckwheat, some that oats, while others think there is nothing like corn to promote their laying; but it is my opinion it matters little what sort of grain is fed only give them enough, and the better the quality of the food, the more will they benefit by it. And not only will they feed on farinaceous food, but on vegetable and animal substances, such as blood, fat, flesh, and fish, both raw and cooked; and they will as readily eat their own species as of any other. I have found wheat screenings which I procured at the flouring mills, a very good and cheap article of food for fowls. Corn fed alone should always be cracked.

As potatoes contain a great proportion of nutriment in comparison with their bulk and price, they constitute, when boiled, one of the most economical articles upon which poultry can be fed. But if fed alone, and entirely on them, I found it caused a looseness and scouring. Mr. Parmentier advises that they should only be given for the purpose of fattening, since he thinks they will render the fowls so fat as to hinder them from laying. On the contrary, it agrees, I believe, with the experience of poultry keepers in general, that potatoes are excellent for promoting the laying of fowls. They are not over and above fond of them cold, but eat them greedily when boiled and given to them warm. It is likewise requisite to break them, for they will not unfrequently leave a potatoe when thrown down unbroken, taking it, I presume, for a stone.

To feed grain economically, feeding-hoppers should be constructed for that purpose, and the one figured and described below, I have found to answer a good purpose.

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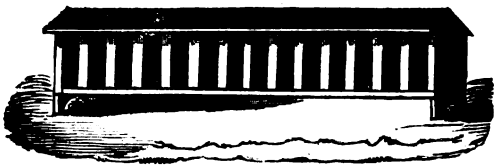

Cut of a Feeding-Hopper.

It is very simple and easily constructed, as you may readily suppose, when I inform you I made it myself. The dimensions are as follows: it is five feet six inches long, nine inches wide, end pieces fourteen inches high, the bottom raised four inches from the ground; a strip of board four inches wide is firmly nailed on the sides, raised two inches above the bottom board, forming a manger or trough, to prevent waste of food. Another strip, three inches wide, is nailed on the top, in front, to secure the ends. Narrow strips of lath may be nailed to the top and bottom, leaving space enough for the fowls to enter their heads when eating. The hopper is formed by two pieces of boards, nine inches wide, set between the ends like a V. They should extend to within half an inch of the bottom, and from one to half an inch apart, according to the size of the grain. The top or roof may be of the same width of the box, or it may extend over the sides sufficient to protect the fowls from rain when eating. The length may be varied according to the number of fowls kept.

In feeding of poultry, I am convinced it is the best plan to keep feed constantly where they can help themselves whenever they desire it; and when it is kept constantly before them, I think they will not consume as much as when fed at intervals from the hand; and for that purpose I would recommend the one described above, which I have had in use for the last eighteen months.

The following is an *improved poultry feeding fountain*, published a few years since in the "Transactions of the Highland Society," in Scotland, and figured and described in "Loudon's Encyclopædia of Agriculture."

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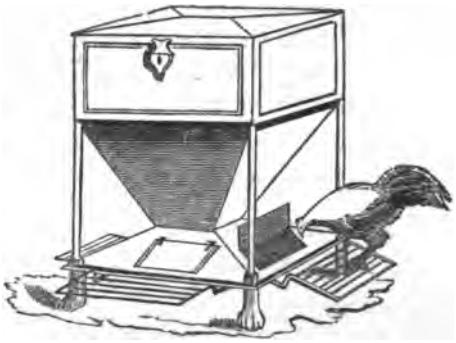

(Cut of Improved Fountain.)

It can be made to contain any quantity of grain required, and none wasted. When once filled it requires no more trouble, as the grain falls into the receiver below as the fowls pick it away; and the covers on that which are opened by the perches, (the principles of which I must confess I do not understand,) and the cover on the top, protects the grain from rain, so that the fowls always get it quite dry; and as nothing less than the weight of the hen on the perch can lift the cover on the lower receiver, rats and mice (which are very troublesome when grain is fed the ordinary way) are excluded. It is astonishing, too, with what facility the fowls learn to leap upon the perches, and so open the cover of the receiver, which presents the grain to their view, and within their reach. On their leaving the perch or platform, the door, either by a spring or weight, closes at once.

(Cut of a Water Fountain.)

Fowls, like some other bipeds of larger growth, prefer clean pure water, and where a running stream cannot be had I would recommend

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a fountain similar to the above figure, which is nothing but a tight keg set on a three legged stool, witha small tube extending from the bottom to a shallow dish, basin or trough, which should be small, so that the fowls cannot get into and soil the water. A demijohn, carboy or jug, may be substituted, and on some account the glass vessel may be preferred, as it can be perceived when empty.

[Cut of a Chicken Coop.]

The above figure represents a very simple and cheap chicken coop. It is formed by nailing boards, two feet in length, forming two parts of a triangle, the ground making a third, as I prefer having the fowls next to the earth, so that to clean it we have only to remove it. I should be at least two feet long; and one end may be boarded up tight, and the other secured by nailing strips of lath, in the form of grates, leaving sufficient room between them for the free passage of the chicks without admitting the hen. There should be in front, an earthen vessel or trough, for water, and a shallow vessel or board to feed them on.

Having provided or recommended a poultry house, yard and fixtures, necessary for the accommodation of fowls, I will now endeavor to give some information relative to selecting such varieties as I have found most useful and productive.

As there is a considerable number of different breeds and varieties of fowls, it seems the most natural order, to begin by some brief notices of the marks by which these may be distinguished, and without allusion to any particular variety, we will enter upon some general remarks in this department. In choosing for stock, select young fowls, if possible, from such as have been remarkable for thrift and good laying. After the first season, you will be able to select eggs from your own stock, of such desirable qualities, which may be attained by care and time, and any peculiar plumage you may fancy. Good fowls, says Ames, may be of any color, but to have none but good and handsomes will require attention and selection; and as they are no more trouble or expense, than inferior ones, they are worth picking for. In choosing a cock, the most active, bold and courageous rooster, will

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generally be found the best bird for the poultry yard ; one may be allowed to eight or ten hens, if a number be kept ; but Mowbray says, from four to six hens are most advantageous, and should be the extreme number. Do not choose a large bird ; for like the largest men, they are seldom the most active.

Some prefer the yellow legged variety, while others prefer dark ones ; the former certainly appear much the best when dressed, and are said by some to lay the best; but they are objected to, as being more tender in constitution, and of a loose, flabby texture of flesh. Dickson says, the best are of middling size, with dark colors and white legs ; light colored or white fowls are of tender constitution, and are not good layers. If there is any one color among the common barndoor or dunghill fowls, which I would recommend for profit, in preference to any other, it would be the Dominique or hawk colored fowl ; as I have found them good layers, good breeders and good for the table.

The barndoor fowl is a mongrel, made up of all sorts and varieties, though a common and useful breed, and can, therefore, be characterized by few distinctive marks, but partakes more or less of the properties of the parent birds, from which they sprung.

The following are some of the wild or original species, and foreign varieties, which are described by different authors and writers on the subject.

Bankavia Fowl.

This fowl is a native of the island of Java, and is characterised by a red indented comb, red wattles or gills, and ashy-gray legs and feet. The cock has a thin, indented, or scolloped comb, and wattles under the mouth ; the tail a little elevated above the level of the rump, and the feathers somewhat disposed in the form of tiles. The feathers of the neck are long, falling down, and round at the tips, and are of the finest gold color. The head and neck are fawn colored ; the wing coverts are dusky-brownish and black ; the tail and belly are black. The hen is of a dusky ash-gray, and yellowish color, and has her comb and beard much smaller than the cock, with no feathers on the neck, besides the long hackles.

The reason for believing that the Bankavia fowl is the wild stock from which our tame varieties derive at least their main origin, are the color and resemblance of their females to our tame hens, the nature of

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the feathers, and the forms and distribution of the barbs, which are absolutely the same as our tame cocks; and because it is in this species alone that the females are provided with a comb and small wattles, characters not found in any other of the wild species which are known.

Another wild species, the jungle fowl, however, has been maintained by Buffon and others to be the origin of our domestic or barn-door fowls.

The Jungle Fowl,

Is three feet four inches in length, and inhabits the great forests of India, continues to reproduce them in the wild state, and is clearly distinct from the domestic races reared by the Hindoos; as these resembles in all respects, the other tame breed of fowls in every quarter of the globe. The cock is smaller than ours. The jungle hen is still smaller than the cock, has neither comb or wattles, and the throat is covered with feathers. In all other respects, it has been said, there is as great a difference between this and any known variety of our tame fowls, as there is between the sheep and the goat.

Game Fowl.

This variety, by Buffon and the French writers, is called the "English Fowl." It is more slender both in the body, neck, bill, and legs than the other sorts and the colors, particularly of the cock, are very bright and showy. The flesh is white, tender and delicate, and superior to that of all other breeds of domestic fowls for richness and delicacy of flavor; but the extreme difficulty of rearing the chickens, from their pugnacious disposition, which shows itself almost as soon as they emerge from the shell, deters most persons from breeding them, except those who breed for the cockpit. I have had the cocks of whole broods, scarcely feathered, sometimes stone blind, sore and raw heads, from fighting, even to the very smallest individuals; moping about in corners, and renewing their battles on obtaining the first rays of light. They are good layers, and their eggs small in size, but like their flesh, are much esteemed, by epicures for superior delicacy.

Dorking Fowl.

This is a valuable and favorite variety, and takes its name from a town in the county of Surrey, (England,) where probably this variety first originated. They are third in size of our large fowls, well shaped, having a long capacious body and shortish legs, and is distin-

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guished by having five claws on each foot. The genuine color is a yellowish white. The flesh is good flavored and of a yellowish or ivory shade. This is the variety generally made into capons. The eggs are large and good flavored. They lay well, fat well, and rear well, are handsome alive and show delicate ivory white when dressed.

Poland Top-Knot.

These, like the brave people from which they derive their name, are esteemed above all others, both from their elegant appearance and their usefulness, and are every way commendable. The true sort are rather above the middle size, their form deep and plump, and the legs of the best sort, not too long. Mowbray says of this very interesting breed, "the Polanders are kept as ornamental, but they are also one of the most useful varieties, particularly on account of the abundance of eggs they lay, being the least inclined to sit of any other breed; hence they are called by some, "everlasting layers." Their eggs are of a large size, and of a rich flavor. They fatten as quickly as any other breed, and are in quality similar to the Dorking; their flesh, perhaps more juicy and of a richer flavor. They are hardy, enduring well the extremes of heat and cold, although they are not so thickly covered with feathers and down as some other breeds. Their color is of a shining black, or a deep glossy changeable purple, with a large white top-knot of feathers, covering so much of the head as almost to blind their eyes; and often require clipping. The contrast of this perfectly white crown with the black plumage, is truly beautiful, but that of the cock differs from his hen, hers being broad and erect feathers, while his are narrow and hanging down in every direction.

Golden Top-Knot.

Boswell, when speaking of the Polanders, says, "there is a subvariety, very ornamental, known as the "Golden Poland," with yellow and black plumage." A few of this splendid variety have been bred in this section, and I have some in my yard, but I have not been enabled as yet to trace their origin, and I have never seen them in any part of the country. They are called by some the "Pheasant Fowl," and by others "French Top-Knots." Their color is of a dark yellow or buff colored ground, with small black spots, with large crests or top-knots of mixt colors. In size they are between the common fowl and bantam; bodies short, plump and compact, with a large tail in proportion to their size, set up some like a fan-tail pigeon. They are much es-

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teemed by the curious, for their beautiful plumage of bright colors and odd contrast, and are one of the greatest ornaments of the poultry-yard.

"*Ostrich Fowl.*"

This variety, I have understood, first originated in Bucks county, Pennsylvania, hence they are called by some the "Bucks county breed." Some of this breed were first introduced into this vicinity from Philadelphia, by the late F. Bloodgood, Esq., some four or five years since.

The specimen I have in my yard was presented to me by a gentleman of Boston, who informed me he procured them from Maryland, where they were called the "Ostrich Fowl." In a letter accompanying the fowls he says, "This breed are the largest of fowls, and from them you will obtain the largest sized eggs. I have had eggs from this breed weighing 4½ ounces avoirdupoise weight. I could have sold fifty pair of the Ostrich at five dollars per pair if I had had them to spare."

The color of the cock is a dark blue-black, with the end of his feathers tipt with white; wings tinged with a bright yellow, or gold color; hackles dark, glossy blue; rose or double comb, and wattles large; bold, lively carriage and a stately walk. The hen does not differ much from the cock in color, and similar in form, being short, plump and thick set in body; legs are of a dark color, and of medium size; she has a high, single, serrated comb, which generally falls over on one side; wattles large. This breed has one peculiar quality, which I have discovered. When first feathered they are very dark colored; the white tips to the feathers are very small, and on moulting the white increases, and continues to increase with every successive moult until the white predominates.

They are esteemed good layers, and for a large breed, good setters and good mothers; the eggs large and nutritious; the flesh unlike the Malay, white, firm, tender and fine flavor. They are supposed to be a cross of a common white fowl and the "J ago fowl."

I esteem them, taking all things into consideration, one of the best varieties or breeds we have, whether for market or home use; they have the peculiar and very desirable quality of early maturity, and coming into feather much earlier, consequently, are ready for market

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or the table before the other varieties are fairly in feather, and being of a large size, command a ready sale and a good price.

Spanish Fowl.

This is a large and valuable variety; their plumage is black; black legs, and large red comb and wattles; "far too high," says Mowbray, "in the legs, and in want of improvement in that particular. They lay the largest of hen's eggs, and are very prolific; their flesh white and delicate. They are very scarce.

The Malay Fowl.

This fowl is similar in size and form to the Spanish, differing in color, being generally brown or a dull yellow; neck and legs long, and the latter generally yellow. They are also what is termed serpent-headed. The hens are tolerable layers, the eggs large, and they are not esteemed good breeders. Their flesh is coarse, flabby, and of a dark color, and not fit for the table until full grown, when they make a very good substitute for a turkey. They have been made to weigh from nine to ten pounds. A cock of this variety is said to have stood on the ground and picked corn out of a flour barrel as it stood on end. They are valuable to cross with our smaller fowls to improve the size of the body and eggs.

The Negro Fowl.

This is a native of Africa, distinguished by the comb and wattles, skin and bones being black, as are also the feathers, though the flesh is white and good. Those which have been carried to England are only kept for curiosity.

The Jago Fowl.

"This may be regarded," says Main, "as the giant breed among the fowl species." Its dimensions are very remarkable; it stands so high on the legs that it can reach food placed on a dining table. Marsden, who reports this fact, adds another which seems not so likely. "When this animal is tired," says this traveller, "he rests on the first joint of his legs, and is even then higher than the common cock on his legs." This extraordinary breed is found in the southern extremity of the Isle of Sumatra, and in the western part of Java.

I have in my yard a trio, a cock and two hens, which were procured in New-Jersey, where they are called by some "Boobies," and by others "Java fowl," and is of recent introduction.

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They are as large and even larger than Malay. Their general color is a dark blue, or changeable black. The cock in my possession has a black and glossy body; wings tipt with light grey; hackles or neck feathers silver grey, or what are sometimes called "shawl-necked;" comb single and low, with deep serrations; neck rather long; wattles small; legs long, and generally of a dark color, and has an awkward, swaggering gait.

The hens are of a beautiful, shining, changeable black; comb and wattles small; legs black, and of medium size; tail feathers rather short, and small in proportion to the body. They are represented to be good layers, and their eggs of the largest size, often weighing over 2½ ounces each, and of good quality.

This valuable breed of fowls have been extensively bred in the town of Haddonfield, N. J., by Mr. Wood and others, where they are held in very high estimation. Specimens of this breed have been exhibited in the Philadelphia markets that weighed when dressed, 19¼ pounds per pair; and I have been informed by one gentleman that he killed one that weighed after being dressed 11 pounds.

ON THE BEST METHOD OF RAISING SWINE AND SOME SUGGESTIONS AS TO THE BEST BREED.

There is no business demanding more attention than that of the farmer. In order to render it successful and profitable peculiar care must be given to every portion of it. Every thing must be attended to in season. It is a matter of extreme difficulty to bring the great mass of our farmers to adopt improvements, which are suggested. Some are unwilling to make experiments, others satisfied to continue in the same course their fathers have pursued, without making an effort to improve upon the practice of the past. The only way I know of, to overcome this difficulty, is by bringing the benefits of the improved system of husbandry, as far as possible, home to every farmer's door. Actual demonstration will usually lead men to think, and when the improvement is manifest in some one or more farmers' management in each neighborhood, they will look around and inquire how these things are, and eventually yield *their* former predilections, and adopt improved systems.

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I have been led to the subject of rearing swine, from an extensive examination into the manner in which farmers continue to prepare their food. A very large number of farmers are in the practice of suffering their hogs to run at large half starved, and then to commence with hard corn and continue on until ready for slaughter. No one can doubt that very great loss accrues from this manner of feeding. What the proportion is, I am not prepared to say; but I am satisfied that it is very great. Corn in this condition is not easily digested, no benefit is derived from the cob, and much of the corn is discharged without being useful at all. Some are in the habit of cracking their corn, before it is used, and this is a very great advance from the other method. I have observed where corn has been ground in the ear, or the corn alone, and then mixed with vegetables, such as apples, potatoes, and carrots, boiled or steamed, though the former is altogether, I think, preferable; a very great saving is found over either of the other methods, and the process of fattening goes on rapidly and steadily. It is usual to have two or more casks or vats, so that the mixture may be of the proper consistency and age, to be the most useful. I believe to insure the greatest success, the animal should be kept well from its earliest feeding. Nothing can be gained by permitting the hogs to roam about half starved during the entire summer. If good pasture is not to be had for them, they should be shut up and well fed and littered, thus adding the most valuable manure for the farm, and preparing the hogs for an early market. It is of very great importance to the farmer to have his pork ready for market at as early a day as is consistent.

Before the extreme cold weather comes on, the hogs should be ready for the knife. It is usual where apples are plenty to use them freely in fattening swine; but apples as well as potatoes should always be boiled or steamed, and a mixture of meal or ground peas are very valuable additions to their food. I might extend these suggestions as to feeding, but do not deem it important in this communication.

Considering the adaptation of the swine to all climates, the ease with which he is reared, and the immense returns which the farmer receives from these animals, it is a matter of surprise that so little is known, apparently of his history. No animal is so much neglected as the hog. Why is this so? and why do not our farmers turn their attention more universally to the selection of choice and improved breeds? Probably this arises from a too common opinion, that any thing is good enough, if it is only a hog. If it will fatten, no matter at what expense, the ani-

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mal will answer. This seems to me to be the reasoning on the subject; but to me it appears of vital importance, that great care should be taken in the selection of these animals, as well as all others. There are choice breeds, that are valuable indeed; and I desire to direct attention to some of these, hoping that our farmers may have their attention arrested; and while improving their cattle from the noble Short Horn, or the beautiful Herefords, or Devons, and their sheep from the choice Saxony, South Down, Cotswold, or Leicestershire, they will not forget that their swine may be equally improved, and at equal profit to them.

Among our best breeds the *Berkshire* stands preëminent. He is, among the swine, what the improved Short Horn is among cattle, cross them where you may, they leave the marks of their superiority. They mature early, can be fattened at any age, and if desired, can be made to attain great size. They are great breeders, and of strong constitutions. They have but very little offal, and their meat is excellent, the hams especially very superior. They require but little food, compared with many of our native breeds; and when it is considered that the farmer may have his animal at any age ready to be slaughtered, how vastly important is it to the farmer that he should secure this invaluable breed.

Some must have a white hog, at all events, and it is enough for them to know that the Berkshire is black. But the skin of the Berkshire, when dressed, is as white as the others, and this we might suppose would be sufficient to satisfy them in this respect. It is extremely difficult to satisfy such men. A neighbor of mine, who was entirely sceptical on this subject, requested the privilege of aiding in dressing one of mine, and the astonishment he evinced when the hair came off, and the white skin appeared, was truly amusing. He however is convinced, and no more argument is necessary for him.

Another breed, and one of our best, and by many considered the *ne plus ultra*, is the *Chinese*. This is a very choice breed, and crosses admirably with our larger hogs. Their fattening qualities exceed those of any other. In fact they take fat so easily and rapidly that great care is necessary to have the sows in a condition to breed profitably. They impart to our coarsest breeds their good qualities, and no farmer will ever have occasion to regret his attention to the Chinese, in connection

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with his common hogs. For family use they undoubtedly are equal, if not superior, to any other breed. But as they do not attain a large size, others are more desired for market.

In New-Jersey, and in some of the western States, the *Woburns* are very great favorites; and I deem this a very superior breed. How they compare with the Berkshires, I have not information sufficient to judge; but that they are a most valuable improvement upon our common hog, cannot admit of a doubt. The *Leicester*, is also highly esteemed; but I think he is not equal to some of the others—a cross from the Berkshire shows a decided improvement.

Another excellent breed is the *McKay*, which is in great repute in Massachusetts, in the vicinity of Boston. From all I have been able to learn of this breed, I have little doubt that it is a cross of the Berkshire, and takes its best qualities from them.

There are several other breeds under different names in various parts of the country, highly esteemed, but which in tracing their history are found more or less to have descended from the Chinese or Berkshire, and derive their best qualities from them.

It is a matter of great importance to the country, that a full and complete history of the hog, the various breeds, &c. should be written. In importance, the hog is second probably to no other animal. Look at the immense returns received by the farmers for pork—millions upon millions every year; and it is not to be doubted, that one-third of the expense of preparing the pork for market might be saved, if care was taken in procuring throughout our country the improved breeds.

My main object in preparing this article, common place as it is, is to draw the attention of those who are competent to give us such a work as we need. And if I should in any measure be the means of hastening on so desirable an event, my utmost wish will be gratified.

BENJ. P. JOHNSON.

Rome, Oneida County, January, 1842.

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THE GRAPE.

After fifteen years' experience in growing the grape from about thirty varieties, selected with the greatest attention as to hardiness and early maturity, I have come to the satisfactory conclusion in my own mind, that none of the foreign and but few of the native varieties, are worth cultivating in any of the northern States.

Of a large catalogue of native kinds, only a few will ever remunerate the trouble of cultivation; among these may be enumerated the following:

The Fox, (*Vitis Vulpina,*) a native of the eastern and some of the middle and southwestern States, several varieties of which, from their early maturity, are to be tolerated, particularly one of a light lilac color, which ripens very early; it is a pulpy grape, with a strong musk flavor, and is difficult of propagation either by cuttings or layers.

The Isabella, Catawba, Clinton and York Madeira are the best of our native varieties, and I hold it a good conclusion, that with grapes, as with apples, peaches, &c. a few of the very best kinds created should be tolerated, rather than to pursue the vain and losing game of cultivating numerous kinds, nine-tenths of which are of inferior sorts. The best article known of any kind, must and ought to satisfy our tastes; and as long as we have the power and privilege of choosing, we certainly are trifling with good husbandry and good taste, to even tolerate the poorer varieties.

The Isabella is hardy, of easy propagation, and when the fruit has a fair exposure to the sun, has a sweet vinous flavor with a slight tinge of the musk, and a little pulp, particularly if not fully ripe. It generally ripens well in the climate of this State, although there are some exceptions.

The Catawba is hardy and of easy propagation by cuttings, is of a pale wine or lilac color, and has a fine bloom when fully ripe, and is a good flavored grape, but is of uncertain maturity, seldom ripening perfectly as far north as 42 degrees, except in very favorable seasons.

The Clinton is of recent introduction, very hardy and prolific; its cuttings strike freely, its fruit is smallish, of a dark purple color,

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From the numerous and important discoveries which have been made in the Sciences of Chemistry and Geology during the time elapsed since the publication of the books of Chaptal and Davy, the works of these eminent writers, although in their day of the greatest value, have in some measure become obsolete. To supply the deficiency that existed in agricultural literature, the work of Liebig was written, but being addressed to the philosopher rather than to the practical agriculturist, it presupposes more scientific knowledge than is usually possessed by the latter, and its usefulness is thereby lessened. The Lectures of Professor Johnston were specially prepared for, and addressed to, a Society of practical agriculturists, many of whom possessed no knowledge whatever of scientific chemistry or geology. They commence, therefore, with the discussion of those elementary principles which are necessary to a proper understanding of each branch of the subject. Every thing in such lectures which is not, or may not be easily understood by those to whom they are addressed, is worse than useless. The author, therefore, employs no scientific terms, and refers to no philosophical principles which he has not previously explained. Having been requested to publish these lectures for the benefit of practical agriculturists in general, he has endeavored to adapt them to the average knowledge of that class.

For the sake of clearness, he has divided the subject into four parts, the study of each preceding part preparing the way for a complete understanding of those which follow. Thus, the

1st part is devoted to the organic elements and parts of plants, the nature and sources of these elements, and an explanation of the mode in which they become converted into the substance of plants. The

2d, to the inorganic elements of plants, comprehending the study of the soils from which these elements are derived, the origin, constitution, analyses, and methods of improving soils in different districts, and under unlike conditions, with the general relations of geology to agriculture. The

3d, to the nature of manures, by which soils are made more productive; their nature, composition, and mode of action, theory of application in different localities, and the amount of vegetable produce increased. And the

4th, to the results of vegetation—the nature, constitution, and nutritive properties of different kinds of produce, and by different modes of cultivation—the kind and value of food produced under different circumstances—the feeding of cattle, the making of cheese, &c., &c., and to the amount and quality of dairy produce—the constitution and differences of various kinds of wood, and the circumstances which favor their growth.

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shouldered and close set in the clusters, and has very much the appearance of the Munier or Purple Madeira, of which and the Frost Grape, (*Vitis Sylvestris*,) it is supposed to be a hybrid. It is a sour grape well sweetened, of good flavor, and hangs on the vine long after frosts come without injury. It ripens about ten days before the Isabella.

The York Madeira and York Claret are native varieties of good quality, hardy, prolific, and pretty early in maturing.

The value of this fruit may be estimated by the fact of its ripening in September after early peaches, and supplying their place in districts where the peach does not succeed, and at a period before the fall apples are in eating condition, which renders it a very desirable acquisition to the garden and the farm; and from its ease of cultivation and the ability that every one possesses of procuring as many as he desires, as every person in pruning his vines, will willingly give to any one for the asking, as many cuttings as would stock a township. And there is no excuse for any person, of the most ordinary capacity or restricted means, who does not produce this greatest of delicacies, which is so extremely healthful, and which may be considered as one of the bounties of the all-wise, all-bountiful and all-providing Creator.

The grape is as easily preserved as apples, with a little care and pains. Packed in a box, basket, or cask containing not over a bushel, with common cotton batting *stratum super stratum*, and kept in a cool, dry situation, free from frost, and they will keep in as perfect order till the first of March, as when plucked from the vines.

In a garden they are best cultivated on an upright, single trellis running north and south, with posts, the bottoms of which should be spliced with cedar to ensure durability, about ten feet high and seven feet apart, so that a 14 foot board cut in slips of two inches in width and nailed two feet apart, will reach two posts.

The process of running the vines on an arbor with two sides and an arch is decidedly wrong, for the inside and overhead clusters get no sun, and they either do not ripen or are without flavor.

In all garden cultivation, upon whatever frames they are trained, they will require pruning, or else so luxuriant is their growth, that "the world would not contain them."

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They should immediately after the fall of the leaves, have every runner of new wood cut in to four or five eyes, or buds, from the old wood, and otherways be thinned out and kept in an open, free state; new shoots should be encouraged as low down as possible, to form bearing wood for the next year; otherways, after they obtain age, the whole of the new and bearing wood will be at the very top of the frames, beyond reach, and falling over by the force of the wind into smothered and swampy masses, fatal to both quality and quantity.

There is another manner of cultivation from which I have received great satisfaction. I take the vines, say of two or three years' growth, from the cuttings, and plant them in some rich earth at the foot of all my shade trees about my fields and fences, an ornament to a farm to which I am rather partial, or at the root of some large, poor-fruited apple, pear or plum tree, and secure them from cattle by staking them around the tree, and bid them God-speed; in three or four years they get possession beyond the ability of the interruption of cattle or sheep, and furnish a supply of the very finest of fruit, having the sun and air in perfection, and the trouble of pruning and trellising is wholly saved.

I have a single vine of the Isabella, now ten years old, which got possession of an apricot tree so extensively that it was beyond my power of detaching, or even pruning it, which has produced for the last four years from ten to fifteen bushels yearly of grapes of superior size and flavor.

When twenty-five cents will buy a large rooted vine, and two coppers' worth of trouble will grow one from a cutting, what excuse can the most inactive and indolent person make for not cultivating this most delicious fruit; why a man having one drop of human kindness in his heart not coagulated by selfishness, would, on a *leasehold of one year*, stick in the earth a simple cutting, for the benefit of his kind that might come after him, so that the recording angel should drop one tear of benevolence on some act of his short comings, and blot it out forever.

The whole class of foreign varieties have two important defects; one is, that the fruit mildews and becomes totally worthless; and the other is, that they are so tender that they will not withstand the cold of our ordinary winters without covering with earth; faults that their exquisite flavor and richness cannot compensate for. After a few years' growth, they become large and attached to the frames upon which they are trained, and the labor of protecting them becomes very great, yet

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their greatest fault is the failure of the fruit after about four years growth and fruiting. The first two or three years after they commence bearing, they generally perfect their fruit and bear well; after this, their whole produce is a great disappointment. As a curiosity they may be tolerated in a small way, by keeping a constant succession of new vines and training up the old ones.

The cause of this fatality I suppose to arise from the great rush of sap after warm rains in the summer, which is forced up in such quantities, and with such power, as to burst the berry, or to make them bleed at every pore, when they soon mould, and the whole cluster becomes a perfect fungus.

We plant our vines on too rich soil. There is no plant that roots as freely as the grape, or sends out as many sprongle, and the forcing power of the sap is not to be wondered at, when the fact is taken into consideration that the sap rises with a pressure greater than the pressure of the steam in a low pressure steam engine, as is shown by putting a glass tube filled with quicksilver upon the end of a cut vine, when it will raise and sustain a column of forty-two inches in height. Probably if we allowed the vines to ramble freely in a state of nature, and not to shorten them in by pruning, that they would have no more root than top, whereby there would be a vent for the amazing quantity of sap that is thrown up by its fine roots that are so abundant near the surface.

Loubat, a vine speculator on Long Island, asserted some years since, when he found the failure was likely to be fatal to his interests, that if the *day roots*, as he termed them, or surface roots, were cut off every spring, that it would operate as a preventive to the mildew, a supposition that would seem to agree with my hypothesis, as in that case there would not be a redundancy of roots over the foliage and fruit; and there can be no doubt that we set our vines in too rich and fertile soil, the roots expand and multiply in all the freedom of unrestrained luxuriance, while we in our own defence, to keep them within due bounds, are obliged to curtail and shorten its sources of expenditure of sap and nutriment. In France, the vines are set in the poorest barren shales that can be found, and on the escarpments of mountains, upon platforms of rocks covered artificially with soil. I am not advised whether the process of *starving* has been tried in this country; in fact, it is

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hardly worth trying until we get a more genial climate, of which there is a fair prospect, if this winter is to be taken as a sample.

One word on the subject of making wine from grapes of northern growth and I have done with the subject.

None of our grapes after undergoing the process of scalding in lye, and properly exposing them to the dessicating course laid down in the books, or by any other method as yet suggested, will produce the *raisin*, or any thing approaching to it; they dry up into a flat shapeless form, consisting of skin and seeds, with a slightly sour and tasteless flavor, which it would be impossible to recognize as the fruit of the vine. Our climate is not genial enough to perfect the saccharine formation in quantity and perfection sufficient to make it a strong fermentable article, and what is more fatal still, is the fact that they do not contain the *tartaric* acid in any notable degree, or not in sufficient intensity to decompose the saccharine matter and produce the liquid known to amateurs as *wine*. The *malic* acid seems to predominate, as in the currant, gooseberry, and apple, and the juice of our grapes, when fermented, is but a *cider* with a little of the essential oil peculiar to the grape, sufficient to slightly alter its flavor; even with the tartaric acid and the saccharine added, till its hydromatic weight equals the strength of the *must* of foreign production; still, disguise it how you will, the result is *cider*, a fine strong peculiar flavored cider, and none of all the kinds yet produced in America, could for one instant impose upon a mere tyro in wine tasting. I have drank of most of the samples produced in this country—the Vevay—the North Carolina scuppernongs, and of eight varieties produced by the celebrated Major Adlum, of Georgetown, D. C., some of which was a fine palatable *liquor;* but the most of all that I have seen, were inferior to the weak clarets of Bordeaux, or the red wines of the Rhine, in which opinion I am confirmed by every one within my acquaintance who has investigated the subject.

Whoever makes an outlay to form a vineyard, with the intention of making wines, will be wofully disappointed and result in a total failure.

If the monster *intemperance* is by the exertions of the humane and the force of public opinion, to be bound hand and foot, and cast into the abyss of annihilation and forgetfulness, it is a wise provision of the God

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of nature that our great source of that seductive and prevailing evil should be wanting in the productions in our free and happy land.

L. B. LANGWORTHY.

Greece, Monroe Co., N. Y., 1842.

MANUFACTURING AND WOOL GROWING INTERESTS.

Lowell, Jan. 14th, 1842.

HENRY S. RANDALL, Esq.,

Cor. Sec'y N. Y. State Agricultural Soc'y.

Dear Sir—In accordance with the request contained in your favor of October last, that I should furnish an "article on the manufacturing and wool growing interests, as viewed in reference to each other." I have the pleasure of handing you a statement of facts, presuming it would be more valued by your intelligent society than a treatise founded on theories and opinions.

The Middlesex Woollen Mills under my charge cost over three hundred thousand dollars, and have a cash capital besides of about four hundred thousand dollars. These amounts were mainly withdrawn from foreign commerce; and so large a proportion being invested in mills, fixtures, and houses, in the heart of an agricultural country, the immediate effect could not fail to be highly advantageous to its population. This establishment employs over six hundred persons, and pays in cash for labor one hundred and fifty thousand dollars yearly in monthly payments. This company consumes yearly near a million pounds of wool principally of American growth. Since the last clip, over nine hundred thousand pounds have been bought direct of the wool growers entirely for cash. Till within a few months olive oil was considered essential in the manufacture of wool. Now we use yearly twelve thousand gallons of oil made from American beef tallow, and not one gallon of olive oil.

This company consumes fifteen hundred cords of wood yearly, cost here six thousand dollars; and five hundred tons hard coal, about four thousand dollars; three millions American grown teazles, four thousand dollars, &c. &c.; paid for transportation in 1841, of wool and materials to this place, and goods from here, eighteen thousand dollars. I have enumerated the principal articles of American production, but

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there are a vast many smaller ones ; amounts to many thousand dollars a year.

You have here described the operations of one establishment containing twenty-six sets of machinery. There are in the United States over fifteen hundred sets of similar machines generally in operation, and the sympathy between the wool growers and woollen manufacturers, is so palpable that I will not ask you to seriously contemplate it. Indeed these two great branches of American industry are of vital importance to the prosperity of this country.

I remain, your obt. servt.

SAM. LAWRENCE.

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V. TREASURER'S REPORT.

To Ezra P. Prentice, Treasurer of the New-York State Agricultural Society, in account with the State of New-York.

DR.			CR.		
1841.			1841.	Vouch No.	
To cash of C. N. Bement, former treasurer, ..		$46 87	By cash paid for advertising, ...	1	$0 50
" James Wadsworth, Geneseo, ...		100 00	" L. Sandford for pitchfork, ...	2	2 00
" J. T. Beekman, Kinderhook, ...		50 00	" S. F. Smith, for printing, ...	3	7 00
" Erastus Corning, Albany, ...		50 00	" T. A. & S. F. Smith, for b'k cards,	4	0 50
" Arch'd McIntyre, Albany, ...		50 00	" J. Askins, for carpenter's work, .	5	2 50
" E. P. Prentice, Albany, ...		50 00	" Smith & Farmer, for printing, ..	6	10 00
" Francis Rotch, Buttermuts, ...		50 00	" H. S. Randal, for expenses, ...	7	20 00
" John Townsend, Albany, ...		50 00	" Elijah Wilson, premium on flour,	8	10 00
" D. D. Campbell, Schenectady, ...		31 00	" William Ward, on cow, ...	9	12 00
" E. C. Delevan, Ballston, ...		25 00	" P. & G. Warren, on stud horse, ..	10	8 00
" J. McDonald McIntyre, Albany, ...		25 00	" Wm. Colton, prem. on mare&colt,	11	12 00
" J. M. Sherwood, Auburn, ...		25 00	" Samuel Allen, on working oxen, .	12	8 00
" George Vail, Troy, ...		25 00	" Nathan A. Cooper, on stud horse,	13	20 00
" Stephen Van Rensselaer, .Albany, .		25 00	" Jesse Campbell, on boar, ...	14	8 00
" W. P. Van Rensselaer, Albany, ...		25 00	" Seth Starr, on spring wheat, ...	15	5 00
" Teunis Van Vechten, Albany, ...		25 00	" Mrs. Melora Shove, on silk, ...	16	10 00
" Willis Gaylord, Otisco, ...		20 00	" Moses Kenny, on bull, ...	17	12 00
" Edward P. Livingston, Clermont, ..		20 00	" I. S. Wilcox, on straw cutter, ..	18	8 00
" W. E. Bleecker, Albany, ...		10 00	" Mrs. D. Carter, on silk, ...	19&53	20 00
" Thomas Dunn, Albany, ...		10 00	" William Ingall, on seed corn, ...	20	3 00

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V. TREASURER'S REPORT—CONTINUED.

DR. *CR.*

1841.		1841.	Voucher. No.	
To cash of Gideon Hawley, Albany,	$10 00	By cash paid William Cook, on mare and colt,	21	$8 00
" Jeremiah Johnson, Brooklyn,	10 00	" Clark, on bull,	22	12 00
" James Kidd, Albany,	10 00	" Samuel Phelps, on bull calf,	23	5 00
" Henry Knower, Albany,	10 00	" Samuel Townsend, on mare,	24	20 00
" George I. Pumpelly, Owego,	10 00	" U. Jackson, on South Down sheep,	25	5 00
" Gerrit Smith, Peterboro',	10 00	" R. S. Mason, on sheep,	26	5 00
" Charles Van Benthuysen, Albany,	10 00	" A. Douglass, on threshing mill,	37	20 00
" Bradford R. Wood, Albany,	10 00	" Oren Heffron, on fanning mill,	28	8 00
" John N. Wilder, Albany,	10 00	" H. S. Randall, on heifer,	29	10 00
" B. G. Avery, Syracuse,	5 00	" Calvin Olds, on drill barrow,	30	5 00
" M. D. Burnett, Syracuse,	5 00	" M. B. Bateham, on seed wheat,	31	5 00
" H. Baldwin, Syracuse,	5 00	" Rawson Harmon, Jun., on do	32	10 00
" B. Schuneman & Co. Syracuse,	5 00	" Chester Moses, on sheep,	33	5 00
" D. S. Colvin, Syracuse,	5 00	" Enoch Marks, on bull,	34	8 00
" Daniel Dana, Syracuse,	5 00	" Julius Hatch, on sowing machine,	35	10 00
" Major Dana, Syracuse,	5 00	" D. G. Stafford, on horse power,	36	5 00
" Henry Davis, Jun., Syracuse,	5 00	" H. Old, on threshing machine,	37	10 00
" F. G. Jewett, Skaneateles,	5 00	" Norman Ackley, on horse power,	38	10 00
" James R. Lawrence, Syracuse,	5 00	" Howard Delano, on plough,	39	30 00
" William T. Lawrence, Cayutaville,	5 00	" Anthony Van Bergen, on swine,	40	8 00

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To cash of Jordon L. Mott, New-York,	$5 00	By cash paid H. More Moorens on plough,	41	$30 00	
" Philo D. Mickles, Syracuse,	5 00	" Stevens Cook, on plough,	42	5 00	
" M. L. Marsh, Syracuse,	5 00	" E. D. Holliday, on plough,	43	20 00	
" W. H. Morris, West Farms,	5 00	" D. D. Campbell, on bull,	44	8 00	
" B. D. Noxon, Syracuse,	5 00	" William McKnight, on swine,	45	5 00	
" Hiram Putman, Syracuse,	5 00	" J. B. Thompson, on horse,	46	12 00	
" Philo N. Rust, Syracuse,	5 00	" D. Marsh, on sheep,	47	5 00	
" L. H. Redfield, Syracuse,	5 00	" L. Sandford, on pitchforks,	48	5 00	
" Stephen Smith, Syracuse,	5 00	" Philo N. Rust, on swine,	49	5 00	
" James Thompson, Ballston,	5 00	" Francis Rotch, on sheep,	50	20 00	
" William Thorburn, Albany,	5 00	" C. N. Bement, on swine,	51	20 00	
" Voorhees, Syracuse,	5 00	" " on bull,	51	8 00	
" Hamilton White, Syracuse,	5 00	" " on cultivator,	51	8 00	
" Horace White, Syracuse,	5 00	" Amos Holbrook, on horse rake,	52	5 00	
" Herman Wendell, Albany,	5 00				
" H. W. Allen, Syracuse,	3 00	" Jacob T. Lansing, on butter,	54	$30 00	
" F. Benson, Jordan,	3 00	" William Merrifild, on butter,	55	20 00	
" Lyman Cluns, Syracuse,	3 00	" Charles Lyon, on butter,	56	10 00	
" W. J. Dodge, Syracuse,	3 00	" H. P. & G. Allen, on cheese,	57	20 00	
" J. G. Forbes, Syracuse,	3 00	" Daniel Marvin, on cheese,	58	10 00	
" Amos P. Granger, Syracuse,	3 00	" Phineas Hardy, on cheese,	59	8 00	

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V. TREASURER'S REPORT—CONTINUED.

DR. *CR.*

1841.		1841.	Vouchers. No.	
To cash of H. Loomis, Syracuse,	$3 00	By cash paid Phemas Hardy, on potatoes,	$60	15 00
" E. W. Leavenworth, Syracuse,	3 00	" W. B. Ludlow, on rutabaga,	61	15 00
" E. Rhodes, Syracuse,	3 00	" S. B. Vail, on sugar beets,	62	15 00
" William Salisbury, Leeds,	3 00	" Andrew Wiffles, on seed wheat,	63	2 00
" Oliver Teall, Syracuse,	3 00	" George Schæffer, on rutabaga,	64	8 00
" E. F. Wallace, Syracuse,	3 00	" A. A. Egleston, on oats,	65	5 00
" M. Williams, Syracuse,	3 00	" John N. Tunnecliff, on barley,	66	15 00
" Robert Allen, Syracuse,	2 00	" H. D. Grove, on potatoes,	67	8 00
" Thomas Bennett, Syracuse,	2 00	" G. V. Sacket, on heifers,	68	13 00
" A. Burt, Syracuse,	2 00	" John Johnston, on bull,	69	20 00
" Harvey Canfield, Syracuse,	2 00	" J.M.Sherwood,on bull, and heifer,	70	65 00
" Collings & Bartable, Syracuse,	2 00	" Benjamin Stoker, on bull,	71	5 00
" Thomas A. Clarke, Chittenango,	2 00	" Corning & Sotham, on cows, &c.	72	55 00
" John B. Fassett, Troy,	2 00	" E.P. Prentice, on bulls, cow, &c.	73	40 00
" Thomas B. Fitch, Syracuse,	2 00	" J. L. Mott, agricultural furnace,	74	5 00
" George S. Fitch, Syracuse,	2 00	" Caleb Gasper, on working oxen,	75	12 00
" M. Farmer, Syracuse,	2 00	" sundry bills advertising, &c.,	76	52 26
" Russel Hubbard, Syracuse,	2 00	" C. Van Benthuysen, printing,	77	41 00
" J. P. Hicks, Liverpool,	2 00	" Wiley & Putnam, books for prem	78	42 70

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"	George Kimberly, Belle Isle,	2 00	"	Sundry small bills,	22 05
"	Mars Nearing, Liverpool,	2 00	"	Balance cash on hand,	969 36
"	A. T. Perry, Troy,	2 00			
"	John Sampson, Troy,	2 00			
"	Oliver R. Strong, Onondaga Hill,	2 00			
"	James G. Tracy, Syracuse,	2 00			
"	349 members at 8s. each,	349 00			
"	State of New-York,	700 00			
		$2056 87			$2056 87
To balance cash on hand,		$969 36			

E. E. *Albany, N. Y.*

E. P. PRENTICE, *Treasurer.*

We certify that we have carefully examined and compared the above account with the accompanying vouchers, and that the same is, in all respects just and true.

JAS. S. WADSWORTH, *President,*
LUTHER TUCKER, *Rec. Secretary.*

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VI. MEMBERS OF THE STATE AGRICULTURAL SOCIETY, 1841.

LIFE MEMBERS—*By the payment of* $50.

John P. Beekman, Kinderhook.
Erastus Corning, Albany.
Edward P. Livingston, Clermont.
Archibald McIntyre, Albany.
John McDonald McIntyre, Albany.
Ezra P. Prentice, Albany.
Francis Rotch, Butternuts.
John Townsend, Albany.
James S. Wadsworth, Geneseo.
William W. Wadsworth, Geneseo.

ANNUAL MEMBERS—*By the payment of* $1, *or more.*

Warren Abott, Otisco.
Job Angell, New-Hamburgh
Myron Adams, East Bloomfield.
B. G. Avery, $5, Syracuse.
H. W. Allen, $3, Syracuse.
Robert Allen, 82, Syracuse.
Silas Ames, Syracuse.
Theodore Ashley, Syracuse.
Thomas Allen, Syracuse.
E. C. Adams, Liverpool.
William B. Abbott, Syracuse.
Harry Avery, La Fayette.
Norman Ackley, Rochester.
L. F. Allen, Black Rock.
H. P. & G. Allen, Duanesburgh.
Caleb N. Bement, Albany.
Amos Briggs, Rensselaer Co.
Jesse Buel, Albany.
Lewis Buffet, Scaghticoke.
S. B. Burchard, $2, Hamilton.
Joseph Brockway, Albany.
Charles Broom, Fallsburgh.
John H. Beach, Saratoga Springs.

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William A. Beach, Saratoga Springs.
Dennis Belden, Troy.
Adrian Bergen, New Utrecht.
Jabez Burrows, Mayville.
M. D. Burnet, $5, Syracuse.
F. Benson, $3, Jordan.
Thomas Bennett, $2, Syracuse.
A. Burt, $2, Syracuse.
C. E. Bristol, Syracuse.
P. M. Bromley, Syracuse.
J. I. Bradley, Syracuse.
D. S. Bennett, Syracuse.
H. Bronson, Syracuse.
William Barker, Syracuse.
William Bradley, Jr. Syracuse.
J. M. Baker, Canton.
W. W. Bracket, Syracuse.
Joseph Breed, De Witt.
H. Baldwin, $5, Syracuse.
Bradley, Schuneman & Co. $5, Syracuse.
William F. Bowne, Butternuts.
Cyrus S. Button, Newark.
William E. Bleecker, $10, Albany.
Abel Baldwin. Clarkson.
Henry Brewer, Enfield.
M. B. Bateham, Rochester,
J. W. Bacon, Waterloo.
P. Barber, Homer.
A. L. Beaumant, Lyons.
Mr. Barnes.
Denison Baldwin, Springport.
Joseph Baker, Manlius.
James Beebe, Sullivan.
S. R. Beardsley.
E. C. Burton, Lee.
Micah Brooks, Rochester.
Mathew Bullock, New Scotland.
Elon Comstock, Stokes.
Ezra Cornell, Ithaca.
L. D. Clift, Carmel.

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Roswell Curtis, Owasco.
D. D. Campbell, $30, Schenectady.
Phineas Catlin, Catherine.
Zenas Clarke, Potsdam.
Charles Cooke, Havana.
John Crawford, Moreland.
John A. Corey, Saratoga Springs.
P. H. Cowen, Saratoga Springs.
Franklin Cummings, Troy.
Albert G. Carll, Jericho.
D. S. Coldwin, $5, Syracuse.
Lyman Clury, $3, Syracuse.
Harvey Canfield, $2, Jordan.
Collins & Bartable, $2, Syracuse.
Benjamin F. Colvin, Syracuse.
John Cushney, Syracuse.
William A. Cook, Syracuse.
Waterman Chapman, Syracuse.
John B. Cole, Syracuse.
N. Cooke, Syracuse.
Richard S. Corning, Syracuse.
Hiram Church, Syracuse.
V. Cook, Syracuse.
Tallmadge Cheney, Salina.
George H. Colton, Onondaga Hollow.
Thomas A. Clark, $2, Chittenango.
Chauncey Coates, Oswego.
J. D. Cross.
Henry Chesebro, Auburn.
Rufus Cosset, Onondaga.
Mrs. Darius Carter, East-Bloomfield.
William Cook, Oneida co.
Jacob M. Cook, Skaneateles.
Solomon Case, Vernon.
Mr. Crane, Carmel.
Eli Clary, Salina.
Dennis Church, Riga.
Willard Colton, Lenox.
William C. Cornell, Henrietta.
J. Campbell.

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Heman Chapin, East-Bloomfield.
O. C. Chamberlain, East-Richfield.
Isaac Crary, Knox.
Thomas R. Courtney, Albany.
John B. Dill, Auburn.
John A. Dayton, New-York.
Jacob Dater, Troy.
Charles Dauchy, Troy.
Daniel Dana, $5, Syracuse.
Major Dana, $5, Syracuse.
Henry Davis, Jr. $5, Syracuse.
W. I. Dodge, $3, Syracuse.
P. Dickinson & Co. Syracuse.
C. Davis, Syracuse.
E. C. Delavan, $25, Ballston Centre.
Thomas Dunn, $10, Albany.
Harvey Davis, Schenectady.
Howard Delano, Mottville.
P. W. Dickey, Ontario.
Mrs. Dutton, Utica.
A. Douglas, Skaneateles.
Jirah Durkee, Utica.
John Dean, Westmoreland.
Robert Deniston, Salisbury Mills.
Lewis Eames, Stokes.
Charles Earll, Syracuse.
David S. Earll, Liverpool.
Adriel Ely, Watertown.
Amos Eggleston, Greenwich.
Jacob Ellison.
John Ferguson, Schenectady.
S. S. Fowler, Greenbush.
William Fuller, Skaneateles.
Tyler Fountain, Peekskill.
Eli C. Frost, Catherine.
Thomas Farrington, Owego.
John V. Fassett, $2, Troy.
J. G. Forbes, $3, Syracuse.
Thomas B. Fitch, $2, Syracuse.
George S. Fitch, $2, Syracuse.

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M. Farmer, $2, Syracuse.
Augustus Fowler, Skaneateles.
Joseph L. Franklin, Flushing.
Jacob A. Fonda, Hoosick.
Willis Gaylord, $20, Otisco.
Eber Gaylord, Otisco.
H. M. Gaylord, Otisco.
Silas Gaylord, Skaneateles.
Henry D. Grove, Buskirk's Bridge.
George Geddes, Geddes.
E. H. Goodwin, Havana.
Henry Gifford, Harmony.
John Gould, Essex.
Luther Gere, Ithaca.
Amos P. Granger, $3, Syracuse.
H. Gifford, Syracuse.
A. R. Gillmore, Syracuse.
Robert Gere, Syracuse.
E. O. Gould, Camillus.
George F. Grinnell, De Witt.
Horace Greely, New-York.
N. Gardner, Otsego co.
Charles Godfrey, Geneva.
Caleb Gasper, Marcellus.
Phares Goold, Skaneateles.
William Garbutt, Wheatland.
Thomas Goodsell, Utica.
John Gilbert, Lyons.
L. Gross.
S. H. Hoag, Rensselaer co.
John Helme, Lansingburgh.
Ira Hopkins, Auburn.
Heman Harris, Troy.
J. B. Hart, Troy.
W. Hart, Troy.
Russell Hibbard, $2, Syracuse.
J. P. Hicks, $2, Liverpool.
John Hopper, Onondaga Hollow.
John Howell, Salina.
Benjamin Horton, Salina.

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E. D. Hopping, Salina.
W. Hinman, Syracuse.
J. Hayden & Co. Syracuse.
Parley Howlett, Syracuse.
Charles P. Hicks, Syracuse.
James Huff, Syracuse.
J. W. Hale, Syracuse.
Thomas Hollis, Gilbertsville.
Thomas Harrop, Scott.
Samuel E. Hudson, Newark.
Samuel Hecox, Lyons.
Gideon Hawley, $10, Albany.
Don F. Herrick, Oswego.
A. Holbrook, Whitesboro'.
Hiram Hopkins, Cortlandville.
Elijah Hulburt, Waterloo.
Ira S. Hitchcock, Oneida-Castle.
Thomas Hutchins, Onondaga.
J. W. Howell, New-York.
John E. Hinman, Utica.
Elias D. Holliday, Dansville.
Oren Heffron, Dryden.
G. Hopkins, Auburn.
Levi Hendrick, Wolcott.
Rawson Harmon, Jun. Wheatland.
Henry Hopkins, Laurens.
Phineas Hardy, Le Raysville.
William Ingell, Volney.
Jesse Ives, Bridgewater.
Benjamin P. Johnson, Rome.
Charles F. Johnson, Oswego.
Jeremiah Johnson, $10, Brooklyn.
Abner A. Johnson, Denmark.
F. G. Jewett, $5, Skaneateles.
H. Judson, Syracuse.
J. Jacqueth, Liverpool.
J. Smith Jones, East Bloomfield.
John Johnston, Geneva.
Uri Jackson, Jun. Butternuts.
Chester Jennings, Turin.

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Day O. Kellogg, Troy,
J. W. Kneevels, Fishkill.
G. Kouwenhoven, Flatlands.
George Kimberly, $2, Belle Isle.
Joel Kinney, Syracuse.
F. Kimber, Syracuse.
Alexander Krumbhaar, Cazenovia.
Daniel Kenyon, Newark.
James Kidd, $10, Albany.
Henry Knower, $10, Albany.
Edmund Kirby, Watertown.
Moses Keeney.
A. L. Linn, Schenectady.
Frederick Leonard, Lansingburgh.
William T. Lawrence, $5, Cayutaville.
James R. Lawrence, $5, Syracuse.
H. Loomis, $3, Syracuse.
E. W. Leavenworth, $3, Syracuse.
Charles Lyon, Ogdensburgh.
C. P. Longstreet, Syracuse.
Jonathan D. Ledyard, Cazenovia.
E. Lawrence, Onondaga.
L. R. Lyon, Lyonsdale.
L. B. Langworthy, Hanford's Landing.
Lewis Losee.
William B. Ludlow, Claverack.
Mr. Leonard, Carthage.
J. T. Lansing, Watervliet.
A. Marks, Durham.
John Maynard, Seneca-Falls.
N. W. Masters, Scaghticoke.
Robert Middleton, Sing-Sing.
Erastus Miller, Albany.
L. A. Morrell, $2, Lake-Ridge.
David Monroe, Cammillus.
Enoch Marks, Navarino.
J. J. Merritt, Ogdensburgh.
John Miller, Harmony.
Jordan L. Mott, $5, New-York.
Philo D. Mickles, $5, Syracuse.

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M. S. Marsh, $5, Syracuse.
J. Manning, Syracuse.
Isaac P. Minard, Syracuse.
A. B. Meech, Syracuse.
Peter McGuire, Syracuse.
Samuel Maynard, Brooklyn.
Jefferson Mayell, Ballston.
Asa Munger, Auburn.
Truman J. McMaster, Auburn.
Francis T. Miller, Liverpool.
Joseph McKnight, Onondaga county.
Robert S. Musson, Gilbertsville.
D. Marsh, Pompey.
Chester Moses, Marcellus.
W. H. Morris, $5, West-Farms.
Thomas Mellon, Madison.
William Merrifield, Guilderland.
Daniel Marvin, Cooperstown.
George Mark, Watervliet.
John A. McNeil, South Argyle.
Joel B. Nott, Guilderland.
B. D. Noxon, $5, Syracuse.
Mars Nearing, $2, Liverpool.
R. W. Nolton, Syracuse.
A. W. Nurse, Madison county.
Leavenworth & Noxon, Syracuse.
A. S. Newbury, Waterville.
J. F. Osborn, Port-Byron.
Noah H. Osborne, Syracuse.
Joel Owen, Syracuse.
D. A. Orcutt, Syracuse.
Peter Outwater, Syracuse.
Henry Olds, Syracuse.
Calvin Olds, Marlborough, Vt.
S. M. Parke, Albany.
Sartwell Prentice, Albany.
Elisha Pelton, Otisco.
Stephen Pomeroy, Otisco.
John B. Park, Hannibal.
S. Parker, Troy.

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A. S. Perry, $2, Troy.
George J. Pumpelly, $10, Owego.
S. P. Pond, Brooklyn.
Jared H. Parker, Syracuse.
E. L. Phillips, Syracuse.
Daniel Pratt, Syracuse.
Charles Pope, Syracuse.
Elijah Phillips, Syracuse.
H. A. Perkins, Syracuse.
Hiram Putnam, $5, Syracuse.
T. C. Peters, Darien.
John A. Pitts, Albany.
W. C. Perkins, Oneida county.
F. Pratt, Jr. Onondaga county.
William S. Palmer.
Samuel Phelps, Cayuga county.
E. Pettibone, Vernon.
J. Pettibone, Vernon.
D. A. Robinson, Farmington.
Francis M. Rotch, Butternuts.
Henry S. Randall, Cortland Village.
Arvin Rice, Hannibal.
William Randall, Cortland Village.
Albert Richards, Troy.
George B. Richards, Troy.
Joel L. Ransom, Millport.
P. N. Rust, $5, Syracuse.
L. H. Redfield, $5, Syracuse.
E. Rhoades, $4, Syracuse.
John Rowley, De Witt.
Seth Rowley, Apulia.
Hamilton Rogers, Newark.
George B. Rowe, Canastota.
J. P. Reynolds, Jordan.
John Robbins.
John Reeves, Oneida county.
David Scott, Attica.
A. H. Shaw, Lansing.
J. M. Sherwood, $27, Auburn.
John Savage, Salem.

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James H. Skinner, Hannibal.
Orlo Steele, Oswego.
J. Strachan, Waterford.
Norman Sackrider, Norfolk.
Norton Sage, Norfolk.
John Samson, $2, Troy.
Hiram Slocum, Troy.
Oliver R. Strong, $2, Onondaga-Hill.
Stephen Smith, $5, Syracuse.
E. P. Scriber, Syracuse.
W. D. Stewart, Syracuse.
Thomas Spencer, Syracuse.
George Smith, Syracuse.
Rufus Stanton, Syracuse.
Amos Stafford, Syracuse.
Joseph C. Spencer, Syracuse.
A. L. Smith, Syracuse.
D. G. Stafford, Syracuse.
Hervey Sheldon, Syracuse.
S. F. Smith, Syracuse.
Charles B. Sedgwick, Pompey.
John Sandford, Marcellus.
Hiram Loverhill, Newark.
Micah Sterling, Watertown.
Gerrit Smith, $10, Peterboro'.
William Salisbury, $3, Leeds.
Francis Sears, Truxton.
G. V. Sackett, Seneca-Falls.
William H. Sotham, Albany.
Seth Starr, Sullivan.
A. G. Sage, Madison.
John Snook, Skaneateles.
George Sheffer, Chili.
Luther Tucker, Albany.
William Thorburn, Albany.
James Thompson, $5, Ballston.
John Titus, Hannibal.
N. Tuttle, Troy.
Oliver Teall, $3, Syracuse.
James G. Tracy, $2, Syracuse.

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Mr. Tefft, Syracuse.
J. B. Thompson, Onondaga.
David Thomas, Aurora.
John J. Thomas, Macedon.
William Talcott, Owego.
Russell Taylor, Marcellus.
Richard Taylor, La Fayette.
Samuel Townsend, Canterbury.
J. M. Tunnicliff, Richfield.
R. S. Underhill, Brooklyn.
George Vail, $5, Troy.
S. B. Vail, Greenport.
Stephen Van Rensselaer, $25, Albany.
Wm. P. Van Rensselaer, $25, Albany.
Teunis Van Vechten, $25, Albany.
Charles Van Benthuysen, $10, Albany.
Anthony Van Bergen, Coxsackie.
A. N. Van Patten, Syracuse.
J. Van Sinderin.
James L. Voorhees, $5, Syracuse.
Jacob N. Vedder.
Alexander Walsh, Lansingburgh.
Herman Wendell, $6, Albany.
Wilmot Williams, $6, New-York.
Martin Wiltse, Hannibal.
Joseph M. Warren, Troy.
J. E. Whipple, Lansingburgh.
S. A. Willoughby, Brooklyn.
Hamilton White, $5, Syracuse.
Horace White, $5, Syracuse.
E. F. Wallace, $3, Syracuse.
M. Williams, $3, Syracuse.
E. B. Wicks, Syracuse.
William Winton, Syracuse.
Josiah Wright, Syracuse.
F. Wellington, Syracuse.
L. Walker, Syracuse.
James Walker, Syracuse.
William Ward, Geddes.
Jonathan Woodward, Cazenovia.

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Bradford R. Wood, $10, Albany.
John N. Wilder, $10, Albany.
W. B. Walton, Schenectady.
P. Warren, Manlius.
Harry Weed, Camillus.
Elijah Wilson, Vernon.
Fletcher Woodward, Geddes.
William B. Wright, Rome.
George Whitney, Rochester.
Thomas Weddle, Greece.
Samuel Wood, Wheatland.
H. P. Wooley, Burnt-Hills.
E. G. Whitney, Rochester.
H. C. Yates, Schenectady.

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